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THINKING ABOUT TOMORROW ?

WE ARE

THE wonders of tomorrow will come from the germ of today's genius. Under the feverish pressure of war, developments are taking place that, in less strenuous times, might have required years to realize. Already, technically speaking, our pre-Munich world is an antiquity. The Water Works World of tomorrow, too, will benefit from the effects of this precedent shattering impulse.

The Engineering, Research and Development Departments of the Pittsburgh Equitable Meter Company and its National Meter Division are thinking ahead of the times. On the drawing boards new designs are taking form. In the laboratories experimental models are being put through their paces. With the Victory and a return to normal times, the results of today's research will be apparent in tomorrow's Pittsburgh-National Meters.

WE'VE THOUGHT ABOUT TODAY, TOO

THE *Empire* VICTORY METER

Top measurement value in so-called War Model Meters is provided by the Empire Victory and the Pittsburgh Ironside. Both have fully rust-proofed cast iron cases; both are fitted with the Pittsburgh-National developed molded glass register box; both conserve over 70% of the bronze normally used in the construction of meters of this size. After the emergency is over, these meters can be readily converted to bronze cases if desired.

The Empire Victory Meter employs the time-tested, oscillating piston principle of measurement, using the famous Empire balanced piston. The Pittsburgh Ironside Meter is of the popular disc type, having the same inner-working mechanism that has been proven in thousands of Pittsburgh Arctic and Tropic Meters. Both are accurate measuring instruments, each possessing its own individual characteristics. Together they provide the necessary types to handle practically every domestic meter requirement or preference of water works men.

THE PITTSBURGH IRONSIDE METER

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THE MOST COMPLETE LINE OF WATER METERS IN THE WORLD

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Post-War City and Regional Planning

Seven Points of Agreement

PRESIDENT REMSEN D. BIRD, of Occidental College, and William H. Schuchardt, as City Planning Commissioners of Los Angeles, were recently asked by Mayor Fletcher Bowron of that city to obtain in Washington, New York, and Chicago "such information and data as may be available relating to a comprehensive Los Angeles Master Plan." "We are of course," said the Mayor, "more immediately concerned with the post-war period, when, it is hoped, we may do those things not merely to give employment or because of economic demands of the time but that we may build for the future in accordance with a predetermined plan and know what we are doing as we take each step."

The report of the two Commissioners, dated December 4, 1942, stressing the importance of post-war planning for the super-metropolitan Los Angeles area, says in part:

The challenge to our collective wisdom and to our courage cannot be ignored with impunity. Tragic consequence is certain to be the price exacted for intellectual myopia and timidity. . . .

On this trip to Washington, to the great metropolis of the Atlantic coast, and to that of the Middle West for the purpose of gathering data on organization and procedure, many men, leaders in governmental and in private groups concerned with planning for the immediate as well as a farther removed future, members of commissions, and benevolent foundations were visited and to the following conclusions growing out of those conferences, many contributions were made which rest on broad experience. It is generally agreed:

(1) That, in most instances, planning for general development, as well as for details thereof, should be undertaken by the regularly constituted public authorities, in the region most concerned, with participation by private citizens in advisory capacities.

(2) That all the planning efforts of the entire country, from a proposed Congressional Commission or the National Resources Planning Board down to the planning commission of the smallest city should be well integrated.

(3) That the cost of such planning should be charged against federal, state, and local taxes.

(4) That *NO* public funds, federal, state, county, or municipal, should be allocated for public works unless and until the working plans for such public works (except for minor undertakings) are held by the planning authorities of the area concerned to be part of an approved general development plan.

(5) That planning agencies be given a reasonable but definite time limit within which to study and approve (or otherwise) submitted plans and, in the event of failure to act within that period, jurisdiction shall lapse and the next above agency shall assume the responsibility of examining, approving, and integrating said submitted plans with other plans.

(6) That research need not be carried on to the nth degree, as has too often characterized past procedure, but should confine itself to obtaining only such data as is essential and vital to the preparation of the general development and working plans. There is grave danger, if working plans are slow in preparation, that partial demobilization of the armed forces and munitions plant employees may begin before reemployment in a peace program can be undertaken. After all, the objective must be the execution of plans and not the mere making of plans.

(7) That the success or failure of the entire post-war employment program and of general development planning rests to a considerable extent on the character of the staffs selected to carry out the policies determined on by commissions or executive committees, on their knowing what to do with data gathered, on the quality of their imagination and on their energy. Their plans are the actual foundations of the programs, the work following being the superstructure. It is always foolish to save money on foundations, and on that basis New York has made an appropriation of $500,000 for preliminary planning and over $20,000,000 for precise planning. Chicago spends about $140,000 per year on its rehabilitation studies, and Congressman Alfred E. Beiter's (N. Y.) resolution advances ample sums for planning alone, to which states and municipalities must also contribute. On the other hand the commissions and executive committees are charged with the responsibility of employing only such persons as can "carry the letter to Garcia." Mere paying of high salaries does not necessarily assure high results.

Urban Redevelopment Field Station Established at M.I.T.

TO analyze various proposed methods of urban redevelopment with the object of determining their relative value in terms of present-day social and economic conditions is the purpose of a Field Station which has been set up by the City Planning Division of the Massachusetts Institute of Technology. Associated in the direction of the research program are Professor Frederick J. Adams, head of Technology's City Planning Division; Philip H. Cornick of the Institute of Public Administration, New York City; and Edwin H. Spengler, Associate Professor of Economics at Brooklyn College and consultant to the National Resources Planning Board.

The project has been made possible by funds granted for the purpose by the Albert Farwell Bemis Foundation. Cooperating agencies include the City Planning Board of Boston, Mass., which has made available to the research group its excellent file of data on physical, economic, and social conditions in Boston, and the American Public Health Association's Committee on the Hygiene of Housing, of which Dr. C.-E. A. Winslow of Yale University is chairman.

One of the important problems now being studied by the Field Station is that of the rehabilitation of urban residential areas where the existing buildings are in sound structural and sanitary condition but where the neighborhood pattern is obsolete. Careful estimates are being prepared of both the capital and operating costs of bringing the environmental conditions in such areas up to a standard in line with modern needs and habits of living, particularly in respect to the planning of the local street system and the adequacy of parks, playgrounds, and other community facilities.

In addition to the municipal costs involved in such a program, studies are also being made of changes in the fiscal or administrative policies of the local government which might be necessary or desirable if such a program were to be carried out on a city-wide basis, particularly as they might relate to increases in the percentage of tax-exempt property and in the costs of maintenance and supervision for a greatly augmented program of neighborhood recreation.

Cities Planning for Post-War Municipal Improvements

The fourth installment of THE AMERICAN CITY's series of reports from cities of over 25,000 population throughout the United States appears on pages 71-73 of this issue. For previous installments see the issues of November 1942, pages 35-37; December 1942, pages 47-50; and January 1943, pages 53-55.

Telephone wire coming up

Here's a bomber-gunner hurrying to load his 50-calibre gun. . . .

In peace, a lot of that copper would have gone into new telephone lines. Now it's needed for shooting and winning the war.

That's why we can't build new lines right now. That's why we're saying —"Please don't place Long Distance calls to war-busy centers unless it's absolutely necessary."

Thanks for all your help and we hope you will keep remembering.

BELL TELEPHONE SYSTEM

WAR CALLS COME FIRST

COPYRIGHT ARMY AIR FORCES AID SOCIETY

Our Municipal Notebook

Delving Deeper Into True Fire Prevention

THE currently announced 20th National Fire Waste Contest, to be participated in by some 550 cities, puts an annual spotlight on fire prevention. The common concept of fire prevention is the removal as far as possible of the usual facilities for starting a fire—needless accumulations of combustible materials. Voluntary measures include orderly housekeeping (a rarity), and Clean-up Week. The compulsory measure is by fire-department inspections of commercial and industrial properties and the imposition of penalties.

Assume 100 per cent effectiveness, instead of say 5 per cent, and there still remain innumerable hazards caused by necessary conditions. If all the records in a vault are carefully arranged exactly as they should be, they are merely so much combustible material neatly piled. The hazard remains. If all waste, oily rags, and trash are gathered up in the paint shop of a municipal equipment service station, the paints, oils, clean waste, paint removers, and the equipment remain as possible fuel. Though the walls and floors of a diesel-electric plant be washed daily, the generators, oil switches, transformers, and liquid-fuel remain for a short circuit to ignite. These, and many others which could be enumerated, are not irreducible hazards. Usually the means are available for taking the teeth out of them. The sprinkler system is one method, though inapplicable for electric or liquid-fuel fires. Even where a sprinkler system distinctly fits, the compulsion of law is usually required to get it installed. People fundamentally are not moved to prevention. They act after the fact.

A carbon-dioxide system is another method of obviating otherwise necessary hazards. This system does extinguish electrical and enclosed oil fires without after damage as by water. This system, too, is usually installed where compulsion is exerted or where the owner is particularly enlightened. Carbon-dioxide protection is quite common in power plants and on ships, and to a rapidly growing extent in industry. Dangers to war production have naturally speeded up the use of this clean, quick, and ultimately most economical method. Except where cost is secondary, that factor was the principal brake on pre-war applications which were clearly recognized as important. An even greater brake was, and is, lack of any competent knowledge of the uses, urgent values, and costs of carbon-dioxide fire protection.

From an action point of view, the fire-prevention headquarters in every community is the fire department. Some fire chiefs have a rather wide acquaintance with various extinguishing agents other than water. It seems safe to predict, however, that this knowledge is very far from general. As a matter of fact, it is doubtful if anybody knows whether or not public buildings and their contents could, let alone should, be protected against fire by the installation of carbon-dioxide systems.

What are the specific hazards?

How now are they watched?

How often do they develop into losses?

What would it cost to eliminate them?

What is involved in the process?

How should officials proceed toward action?

If you are interested in the answers to these questions, write to THE AMERICAN CITY, 470 Fourth Avenue, New York. This magazine is gathering facts on carbon-dioxide fire protection at municipal hazards, which will assist city officials in actually preventing after-the-war the destruction by fire, water, or chemicals of valuable records, stocks, electrical equipment, and even the building itself, due to fires starting in especially hazardous locations.

Elements of Municipal Plant Maintenance

THE editors of THE AMERICAN CITY suggest to officials responsible for the maintenance of municipal water, sewage and electric plants, buildings and other city-owned structures ten elements in efficiency, some of which are too often overlooked. Readers are invited to discuss them and to contribute others.

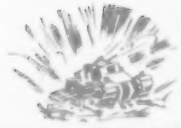
1. Cleanliness, which clears away the coverings that hide carelessness, neglect, and accumulating trouble
2. Weatherproofing, dampproofing, waterproofing, which keep out the deteriorating rust factor
3. Painting for:
   (a) Protection of property
   (b) Sightliness
   (c) Seeing indoors
4. Lighting for ease of operation
5. Lubrication for:
   A. Efficient operation
   B. Keeping down maintenance and repair costs
   C. Keeping down lubricant costs by use of long-lasting lubricants
6. Installation and use of all the modern instruments needed for adequate operating and plant-efficiency data
7. Keeping and analyzing instrument charts and operating data and making adequate laboratory tests to know what your plant is doing
8. Replacement, when possible, of outmodeled or less official equipment with modern and more efficient equipment
9. Dissatisfied with not getting sufficient information which would clear away operating troubles and improve operation and results
10. Use of THE AMERICAN CITY and THE MUNICIPAL INDEX to learn about efficient modern materials, supplies, equipment, and methods for performing the foregoing maintenance measures most effectively.

Value of a Transit Plan

THE practical value of planning and of carrying out the plan is most apparent when an emergency requires the extra facilities. Ten years ago, Indianapolis Railways started a 10-year rehabilitation plan which was completed in six years, as described in the June 1937 issue of THE AMERICAN CITY. The company purchased 90 new street-cars, 152 trolley coaches and 89 buses; track was repaired and overhead installed for 20 trolley-coach lines; a new repair shop was built.

These facilities have been serving Indianapolis well since 1938, and never were they more needed than now. The passenger load is a third greater than a year ago, matching the increase in industrial employment. The Ohio Brass Co. says that some difficulty has been experienced in getting all the repair parts needed. This spotlights the wisdom of providing the new repair shop along with the vehicles. Daily assignments to the shop for repairs average 7 street-cars, 9 trolley coaches, and 12 buses.

"Said a 'hit-and-run' victim named Lee,
'Ship me back to those isles in the sea,
For a drunk in a car
Is more deadly by far
Than a Jap in a strap in a tree.'"
—*Los Angeles Police Department.*



GENERAL GRANTS are doing a fine job on the battlefields, but at many home training camps there's another type of tank that's serving the Army. The 1,000,000-gal. radial-cone Horton elevated tank shown above, is helping to protect the health of thousands of soldiers at a well-known Army post. Formerly this post depended upon two 328,000-gal. elevated water tanks for its water storage. As the garrison grew, improved water supply became imperative and this present elevated tank was erected. It is 73 ft., 6 in. to bottom; has a range in head of 35 ft.; located 6,400 ft. from the wells and is approximately at the center of demand.

Uniform distribution pressures, provision for pumping during off-peak periods, together with an adequate reserve immediately available for fire protection . . . are some of the benefits that elevated storage tanks provide both municipalities and training camps alike.

CHICAGO BRIDGE & IRON COMPANY

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NEW YORK • PHILADELPHIA • SAN FRANCISCO • TULSA • WASHINGTON

Water-Works Operation

Water Resources Being Maintained

WATER resources for both the United States and Canada were maintained through December at approximately the same level as they stood in November, according to information furnished by the United States Department of Interior Geological Survey. Excessive stream flows and flood were noted in the broad areas extending from the central plains to the Atlantic coast and also in Oregon and northern California. Deficient flows occurred in southern Florida and northern New England. Subnormal flows were noted in the intermountain region from Wyoming south through Arizona with drought conditions prevailing in Arizona. The ground water stages were generally favorable.

Cold Weather Operation of Chlorinators

CHLORINATORS should be protected from excessive drops in temperature during the fall and winter months so that satisfactory operation can be maintained, according to M. S. Campbell, Chief of the Washington State Division of Public Health Engineering, in a recent bulletin issued by the Department of Health in that state.

Sharp drops in temperature, Mr. Campbell states, will result in small quantities of liquid chlorine forming on the walls of the chlorine lines. These drops gradually work their way along the walls to the inlet valve effectively obstructing its operation.

Types of Heaters

These difficulties, Mr. Campbell states, can be prevented by heating the chlorinator house. When this building is properly insulated it requires very little heat to maintain the desired temperature. Electric heaters with thermostats provide the ideal type of heat. Chlorine-ice difficulties in the chlorinator itself can be controlled in the solution-type chlorinators by raising the temperature of the solution water. Thermostatically controlled, immersion type of heaters perform this operation satisfactorily. Some operators find that good results may be obtained by hanging an electric light bulb in front of and against the chlorinator. If electricity is not available, gas or kerosene stoves provide satisfactory substitutes.

According to C. F. Schenck of the Wallace and Tiernan Co., Newark, N. J., it is essential that the chlorine piping as well as the chlorinator be kept at the same temperature or preferably a few degrees above that of the chlorine containers. Operating difficulty results when gaseous chlorine condenses in the piping leading to the chlorinator or in the connections at the machine. Chlorine ice (chlorine hydrate), he states, is not to be confused with liquid chlorine that has condensed from chlorine gas in cold tubing. The immersion-type heaters such as the Chromalox heaters are the most satisfactory, he feels.

Town Notes Importance of Water Meters

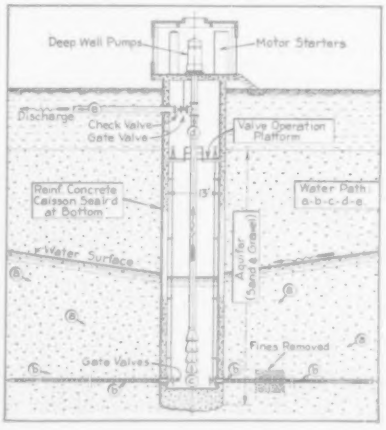
THE importance of meters in water-works operation was stressed by the water commissioners for the town of East Longmeadow, Mass., in their Annual Report.

The commissioners point out that only on the basis of accurate metering will the charges assessed the users be fair and accurate and the water department receive the revenue that it is entitled to for business-like operation. The installation of meters and the maintenance of them, the commissioners feel, are two of the most important duties and responsibilities of the water commissioners.

Selected Water from "Horizontal Wells"

ONE of the most interesting methods of water-supply development that has entered the water-works field in recent years has been the radial well system constructed by the Ranney Water Collector Corp. of New York, Heyburn Bldg., Louisville, Ky. Although used various places in Europe, and accepted widely here by those industries requiring an independent dependable water supply, American municipalities have been slow to utilize it for domestic development.

At present the system seems to be applicable chiefly to the larger cities. In those communities where one or two wells satisfy water requirements, there does not at present seem to be any advantage in using this unique construction. With larger supply requirements, the Ranney method may well be investigated.



Typical Ranney installation. Horizontal pipes may be as much as 300 feet long.

The system consists of a large shaft driven into a relatively shallow water-bearing strata and horizontal pipes extended from this point to the area. The strata, generally gravelly in nature, acts as a natural sand filter for the water and yields a product that is remarkably pure. Careful selection of the strata will result in water that has desirable characteristics, free from iron, minerals, or impurities.

Thorough geological studies are required. These studies will reveal the most advantageous location of the water-bearing strata and will anticipate the characteristics of the water.

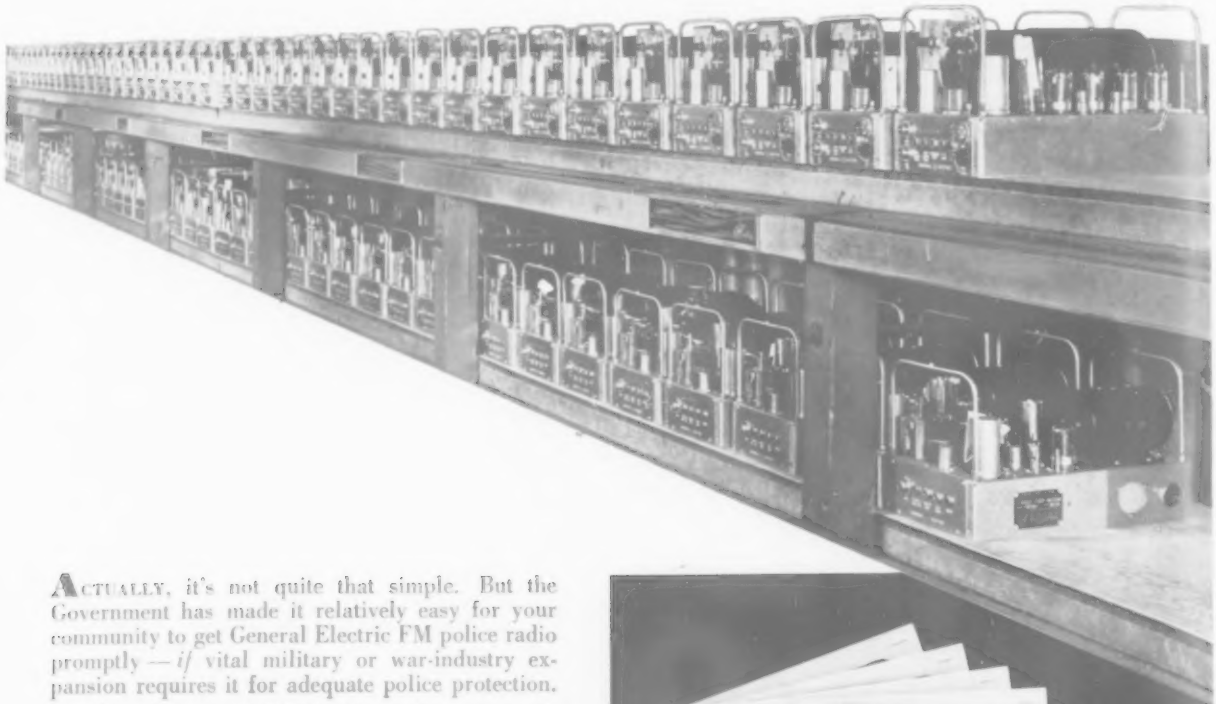
In a completed Ranney unit, the monolithic shaft has a 13-ft. diameter and has reinforced concrete walls 18 inches thick. The shaft is sunk through the water-bearing strata and sealed at the bottom with a heavy concrete plug.

The perforated screen pipes 8 inches in diameter are then projected horizontally into the strata at selected levels through precast portholes in the shaft wall. These screen collector pipes are pushed to lengths exceeding 300 feet under favorable conditions. Surrounding each screen pipe is a bed of gravel approximately four feet in diameter.

On the inner end of each pipe is a gate valve with an extension stem reaching to the pump house above. By using these valves, each of the collector pipes may be closed separately.

Multiple-stage, deep-well pumps have columns extending down into the shaft, which actually is a clear well. These pumps deliver water from the underground reservoir to the mains.

YOUR NEW G-E FM POLICE RADIO IS READY— COME AND GET IT!



ACTUALLY, it's not quite that simple. But the Government has made it relatively easy for your community to get General Electric FM police radio promptly — *if* vital military or war-industry expansion requires it for adequate police protection.

A few of the new G-E FM police radios now available through the Defense Supplies Corporation Radio Reserve Pool are shown above. Engineered in the G-E electronics laboratories, this new equipment also contains many design suggestions from hundreds of municipal police-radio operators.

With extended communication range, remarkable ability to override static and interference, and virtual freedom from fading, it is *FM at its best!* It comes in a variety of 30- and 60-watt mobile and station combinations. There is also a 250-watt station combination.

To simplify selection of your equipment, G.E. is offering brief, explicit bulletins describing eight mobile and five station FM combinations, as well as various accessory combinations. There is also a handy combination-selector guide, a communication-range guide, an FCC procedure guide, and an FM budget guide.

Remember that a special Government set-up simplifies obtaining this new G-E equipment without priorities. Get your order in promptly while the supply lasts! . . . *Radio, Television, and Electronics Department, General Electric, Schenectady, N. Y.*

GENERAL ELECTRIC

WRITE IN TODAY FOR THESE BULLETINS

- ( ) FM Budget Guide
- ( ) FM Communication-Range Guide
- ( ) FM Combination-Selector Guide
- ( ) FCC Procedure Guide
- ( ) FM Mobile Combinations
- ( ) FM Station Combinations
- ( ) FM Accessory Combinations

Public Safety

Transit Radio Cars Beat Buses and Trolleys to Trouble

TO streamline the dispatching of trolleys and buses, the Brooklyn & Queens Division of the New York Transit System has equipped a fleet of 20 patrol cars with two-way police radios. The new system, built by the Westinghouse Electric and Manufacturing Co., relays emergency calls to cruising cars in less than 30 seconds.

Traffic trouble comes in many forms. When a downtown Brooklyn fire threatened to block the converging point of four bus and trolley lines, a radio dispatcher sent three patrol cars to the two diversion points and to the fire. As a result, all but two of the trolleys were diverted through parallel streets. If this work had been done by telephone, hundreds of passengers would have been delayed for as long as an hour.

The Brooklyn & Queens surface system, bought by the city for $27,000,000, serves an area 8 by 16 miles. It uses 1,235 street-cars and 300 buses. Of the 175 street supervisors, 20 now drive radio patrol cars each operated by one man. The cars carry fuses, cable, a 10-ton jack, and other emergency equipment. Ten of the patrol cars have 15-watt transmitters; the other 10 cruisers have receiving sets only.

The dispatching equipment consists of a 5-watt transmitter with its antenna on top of a building, 240 feet above the heart of the patrolled area. Its call letters are WRWH on a frequency of 31,460 kilocycles. It is operated by remote control from the dispatcher's office at the headquarters of the system.

At the dispatcher's desk are seven automatic headway recorders which check the time of cars as they pass various control points; a signal board indicating the number of patrol cars in service; remote-control sending equipment; receiving equipment; and direct telephone lines to stations of street inspectors.

Cities Buying Bombing Insurance

CITY fathers are convinced that bombing insurance is a wise precaution, according to reports now being received of the mounting number of cities that have taken out protective policies on municipal property. As would naturally be expected, coastal cities are much more interested in insuring their property than are the inland communities. Thus, Baltimore, Los Angeles, Seattle, and Hartford have bought extensive war risk coverage from the RFC's War Damage Insurance Corporation. In fact, all but three of the coastal cities have bought or are preparing to buy this insurance. New York is one of the notable exceptions. Baltimore, with the most extensive war risk coverage, is insuring property in the amount of $74,229,000, while Seattle is insuring municipal properties for $30,000,000. Detroit is one of the first inland cities reported to be taking out this form of protection on public property.

—From "Headlines" of the National Association of Real Estate Boards

Wider Truck Rims, Greater Mileage

ONE of the new improvements for adoption when wartime restrictions are lifted will be the use of wide-base rims developed and tested by Firestone engineers since 1938. Pending the general adoption of wide-base rims by truck manufacturers, owners may add thousands of extra miles to tires now in use by replacing the conventional size of rims with wide-base rims. Scores of tests show an average increase of 20 per cent in non-skid life when rims wider than conventional sizes are used.

The changeover is both practical and economical, inasmuch as rims taken from one vehicle can be utilized by transferring them to another vehicle ordinarily using rims one size smaller.

TRAFFIC CONTROL BY RADIO

Two-way radio keeps the dispatching room of the Brooklyn-Queens surface line in constant contact with 20 traffic patrol cars and helps to speed up traffic for 1,200,000 bus and trolley passengers. Reports of fires, accidents, or breakdowns are relayed immediately through this central transmitter to cruising inspectors. Trolleys and buses can then be re-routed.

IN CASABLANCA...

3,496 Miles from the U. S. A.

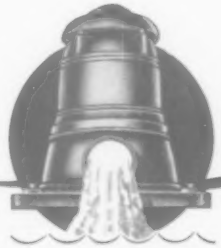
But there, in that heat simmered city on the North Coast of Africa, you will find Layne Well Water Systems identical with those in your own city. Built by Layne engineers, these Layne Wells and Pumps have long maintained their unmatched records of high efficiency, long life and consistent dependability.

Whether in Casablanca,—or in any of hundreds of other cities in all parts of the world, Layne Well Water Systems have the quality and ruggedness that keep them going, even under terrific and long sustained overload. Every feature of their design is based upon the highest engineering skill—and then thoroughly proven in prolonged tests under the most rigorous conditions.

In all of the hundreds of installations made for Military and Naval needs in the rush for troop training and war need manufacturing, not one has failed. At present, nearly 100 percent of Layne production and service is for war necessity but every effort is being made to repair and keep private and municipal installations in operation.

For Folders, Catalogs and Literature, address

LAYNE & BOWLER, INC.
Memphis, Tenn.



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The above companies are affiliates of Layne & Bowler, Inc., Memphis, Tenn.

LAYNE PUMPS & WELL WATER SYSTEMS

WORLD'S LARGEST WATER DEVELOPERS

REPAIRS and maintenance of municipal and private industrial Water System should not be neglected. The Layne Organization is endeavoring to service existing installations with necessary repairs and parts. If your wells and pumps need attention, you are urged to write, giving full details of your requirements. No obligation.

Streets and Street Maintenance

Two views of the rail-removal job at Lewiston, Maine. The upper shows the rails being removed by city forces, and the lower shows the street in its final shape after being repaired.

Lewiston Streets Contribute to the War

LAST year the New England town of Lewiston, Maine, salvaged over 500 tons of steel in the form of streetcar rails as an important contribution to the war effort. This project was strictly a municipal project with no federal help—WPA or any other form—available.

The cost of the project was $45,000. The salvaged rails netted $13.73 per ton from a junk dealer who agreed to cut, load, and haul the rails. City forces repaired the street, putting it back into its original shape. The street was paved with cut granite blocks and bituminous macadam under the direction of the Department of Public Works. The repairs required the use of approximately 10,808 sq. yds. of blocks and 7,500 sq. yds of macadam.

The department was able to salvage 539 gross tons of rails and realized a price of $13.73 per gross ton. There were also 2,333 copper connections salvaged that returned 8¼ cents each.

Who Should Pay for Street Maintenance?

STREET lighting, street cleaning, and drainage costs should be met at least partially by the motor-vehicle user rather than the property owner, according to a statement submitted by Frederick N. MacMillin, Executive Secretary, League of Wisconsin Municipalities on behalf of the American Municipal Association. This was a supplemental statement submitted to the Board of Investigation and Research. The original statement analyzed the distribution of street construction costs (Nov. 1942 issue, p. 13).

In an 11-page report, Mr. MacMillin pointed out reasons for his contentions. In his opinion, the motorist receives many advantages from these street improvements but does not support them financially. Street lighting, he stated, is not solely a crime-deterrent measure. It has a marked effect on reducing traffic fatalities, thereby improving driving conditions—a marked benefit for the motorist. In regard to street cleaning, he stated that much of the litter on the pavements can be traced directly to the habits of motor-vehicle users and that if street cleaning were discontinued these same operators would lodge the most vigorous protests.

In the report, City Manager Henry Traxler of Janesville, Wis., listed the equipment used in his city to maintain streets. He itemized the equipment used in 1923 and 1942 showing strikingly the difference in street paving standards that have developed during the past 20 years. This, it is pointed out, is attributed to the motor-vehicle user rather than the property owner and, accordingly, should be borne by him.

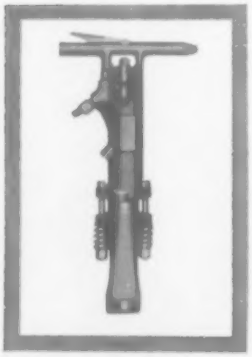
How the Street Department Grew at Janesville, Wis.

1923 Population 19,300	1942 Population 23,000
1 roller	22 trucks
1 horse-drawn grader	2 power graters
2 teams with dump wagons	2 rollers
1 2½-ton truck	1 Diesel shovel
1 small truck	2 tractors
no machinery	2 small tractors
	1 street sweeper
	9 snowplows
	2 compressors
	1 mud jack
	1 marking machine
	complete machine shop with drill press, welding equipment, etc., sign painting dept.

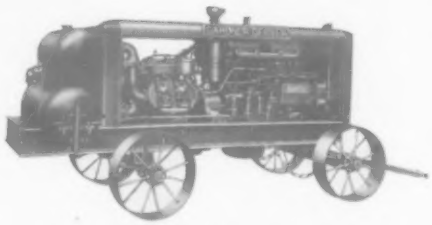
Fit for the Battle Your City Must Wage

WITH intensified war effort putting increased strain on streets and roads—on public transportation systems—on sewage, water and health facilities—your city must wage a constant battle to keep existing services at top-notch efficiency.

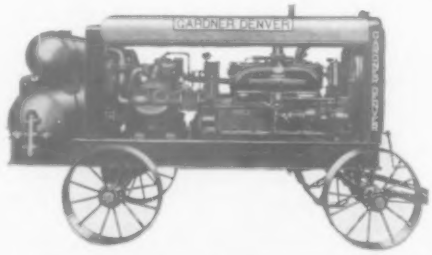
When emergency repairs must be made, Gardner-Denver Portable Compressors often help crews get the job done faster. These *Water-Cooled* Compressors have the ability to keep going regardless of temperature, weather conditions or altitude. They don't ask for pampering on the grueling jobs that demand continuous service. You can depend on Gardner-Denver Portable Compressors for sustained air output every day in the year.



Gardner-Denver B-72H Paving Breakers have plenty of extra power to get the job done faster. A ruggedly built tool, the B-72H delivers a powerful striking blow.



Gardner-Denver WBF-210D Diesel Portable Compressor Unit



Gardner-Denver WBE-160 Gasoline Portable Compressor Unit.

Gardner-Denver WBD-105 Gasoline Portable Compressor Unit.

For further information, write Gardner-Denver Company, Quincy, Illinois

GARDNER-DENVER *Since 1859*

Sewerage and Sewage Treatment

Operators and Engineers Petition New WPB Setup

RESOLUTIONS by both the American Society of Civil Engineers and the Federation of Sewage Works Ass'n call for a revision in the WPB organization handling sewage-works applications for maintenance and repair of existing treatment plant facilities. These resolutions have been forwarded to both Donald M. Nelson, WPB Chief, and Maury Maverick, head of the Bureau of Governmental Requirements, where the sewerage applications are now being received.

They were framed under the direction of George Schroepfer, President of Sewage Works Federation, and Chief Engineer of the Minneapolis-St. Paul Sanitary District, and Linn H. Enslow, Chairman of the Executive Committee, Sanitary Engineering Division of the American Society of Civil Engineers, and editor of *Water Works and Sewerage*.

According to both Mr. Enslow and Mr. Schroepfer, a setup should be established staffed by more men who are familiar with the sewerage works needs. At present, in the existing bureau, the number of men familiar with this type of experience is limited, and a condition may result in regard to the allocation of materials that will leave the sewage field without sufficient material for essential maintenance and repair of facilities now in existence. This, they state, is a dangerous condition detrimental to the war effort and should be remedied.

Both men have been serving as advisory consultants to WPB on matters pertaining to sewerage.

Grease for War Production from New York Sewage

NEW YORK CITY is now drawing ing up advertisements for bids on grease reclamation from its various sewage-treatment plants, according to Wellington Donaldson, Chief of the Bureau of Sewage Disposal Design, Department of Public Works. The present plans are for buyers to bid on grease skimmings as collected at the plant. It is estimated that approximately 50 tons of grease per month can be salvaged, of which 4 to 4½ per cent is glycerin, vital to the war.

The lack of reliable data on grease collection has made the work a little complicated, states Mr. Donaldson. According to the best information available, there are approximately 45 to 50 ppm of what engineers classify as grease in sewage, and only a small amount of this can actually be recovered by ordinary treatment.

According to Mr. Donaldson, a certain amount of literature is available stating that grease will produce more methane in a digestion tank than an equal weight of ordinary sludge solids.

This program, he states, is to be on a trial basis to determine the market value and feasibility of this type of salvage work.

Mr. Donaldson doubted the advisability of permanently adopting a by-product production program that possibly would be an economic liability.

Studying Bacteria in Sewage Treatment

THE characteristics of the purifying bacteria in both activated sludge and trickling filters are essentially the same, and the effective organisms are actually interchangeable in the two processes, according to studies made by C. T. Butterfield and Elsie Wattie for the U. S. Public Health Service. In their report, Public Health Report No. 2343, they state that these zoogleaforming bacteria are active agents in purification. Maintenance of conditions expediting their growth will expedite the treatment processes. This can be established by insuring that the sewage remains in a favorable pH range and does not contain toxic substances.

The organisms are always present in normal sewage. Under favorable conditions they will predominate. Otherwise they will not function even if bacteria are added.

Bathing Beaches Show Sewage-Treatment Value

THE efficiency of sewage treatment in the Cleveland area has received a concrete demonstration in the results of water at six bathing beaches on Lake Erie adjacent to the Easterly Plant. These tests were begun in 1938 before the plant was put in operation and were continued each year after its operation. The tests were begun by Paul Van Gieson, former Senior Bacteriologist, now Sgt. Van Gieson, Chemical Battalion, United States Army.

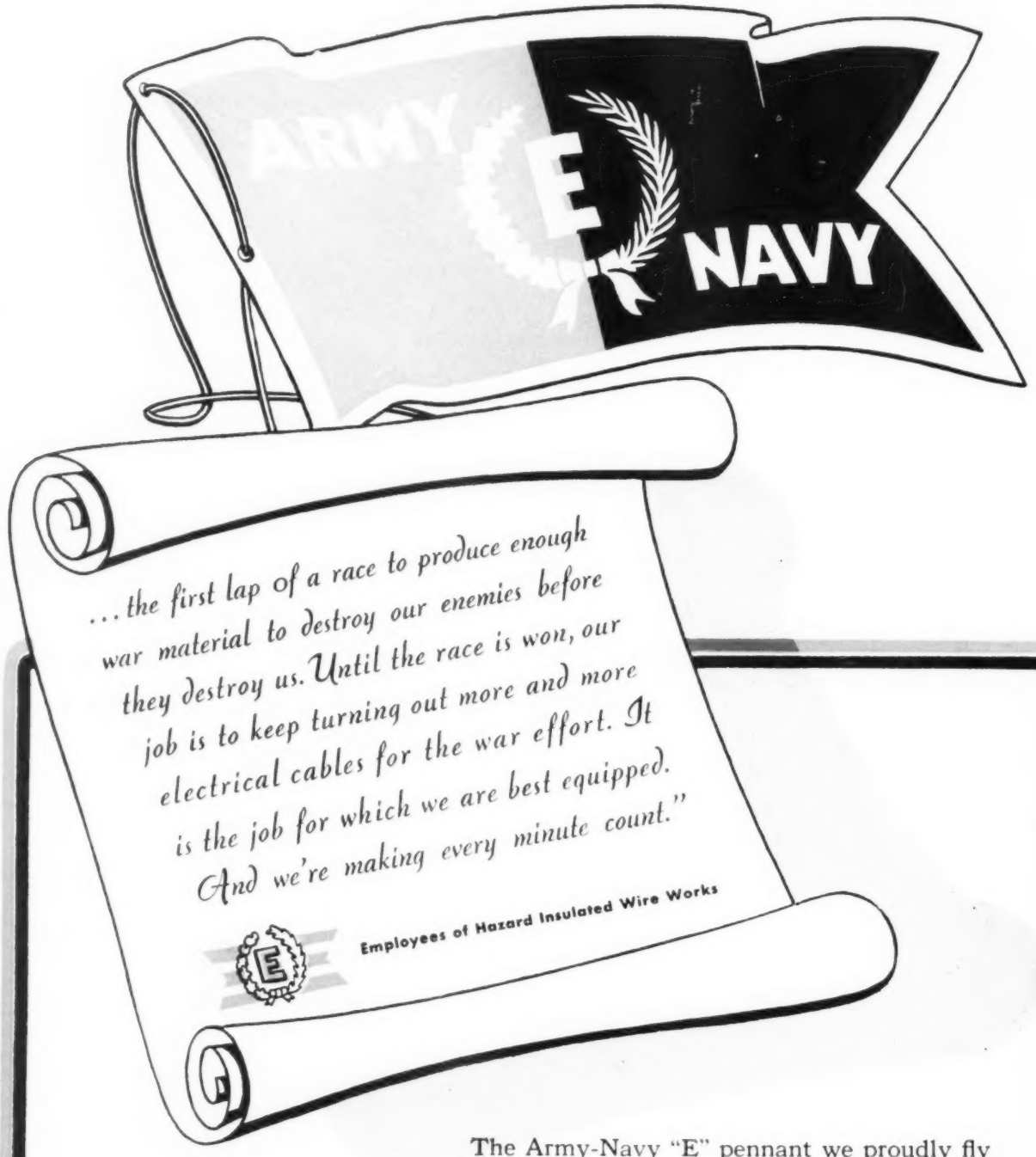
From June 20, 1938, to August 17, 1941, 421 samples were analyzed. The samples were taken on days when weather conditions would permit bathing. All samples were obtained approximately 5 feet from shore at a depth of one foot.

The table below combines the results of the six beaches because they are all affected by the plant effluent. From the outfall, which empties at lake level beyond a breakwall about 1,000 feet from the shoreline, the lake current and prevailing winds normally carry effluent in an easterly direction. It will be noted that nearly 90 per cent improvement was obtained in total bacteria removal, and around 85 per cent improvement was noted regarding the Coliform Bacteria.

IMPROVEMENT IN BATHING BEACHES BY CLEVELAND SEWAGE TREATMENT

	Yearly Averages				Per Cent Improvement Over 1938		
	1938	1939	1940	1941	1939	1940	1941
Total Bacteria Per Ml. 37½°							
Average	30,000	2,800	3,500	2,400	91	88	92
Median	16,000	1,600	3,000	1,900	90	81	88
Coliform Bacteria Per Ml., M.P.N.							
Average	744	148	94	73	80	87	90
Median	200	30	30	29	85	85	86
Number of samples	46	105	112	99			

"This is only the first lap . . .


ARMY
E
NAVY
. . . the first lap of a race to produce enough war material to destroy our enemies before they destroy us. Until the race is won, our job is to keep turning out more and more electrical cables for the war effort. It is the job for which we are best equipped. And we're making every minute count."
Employees of Hazard Insulated Wire Works

The Army-Navy "E" pennant we proudly fly tells the world that our plants are running day and night to meet the demands of our armed forces for insulated wires and cables. It means, too, that we cannot always fulfill the needs of our other customers on time – yet we are doing everything in our power to help them. But winning the war *must* come first.

3145

HAZARD INSULATED WIRE WORKS

DIVISION OF THE OKONITE COMPANY

Wilkes-Barre, Pennsylvania — Offices in Principal Cities

BUY U. S. WAR BONDS – Every Payday All Hazard Employees BUY U. S. WAR BONDS

Airports

Visualizing Air Transportation

"WE are accustomed to thinking of ourselves as creatures living on top of the ground," said Secretary of Commerce Jesse Jones in a radio address recently. "We should realize that we are living at the bottom of an ocean of air readily navigable in all directions at tremendous speeds."

Secretary Jones was explaining to parents and school authorities the purpose of the aviation education program that is being sponsored by the Civil Aeronautics Authority and the U. S. Department of Education.

Detroit Plans for Future Airports

THE present standard major airport size of one square mile does not appear to be adequate for future requirements in the Detroit area, according to a statement issued by the Detroit City Plan Commission.

According to statements made by this Commission, a new major airport in the Detroit metropolitan area should approach two miles square in size in order to provide protection for nearby residential areas as well as adequate potentialities for future enlargements and approach zonings.

Class 3 Airport at Moberly, Mo.

MOBERLY, MO., has recently completed an ultramodern lighted airport, meeting class 3 rating of the Civil Aeronautics Authority. This new airport has facilities to meet the requirements of all new modern transcontinental airplanes.

There are two runways each 3,800 ft. long and a third runway 2,606 ft. long. Runways are paved 100 ft. in width, with an additional 200 ft. of turf available on either side, making a total width of 500 ft. for landing purposes. The airport has a pre-fabricated steel hangar 80 ft. square and an additional adjoining building of reinforced concrete two stories in height, which will house the control room, offices, classrooms, and repair shops.

The airport includes a 190-acre track with additional land available for expansion in any of three directions. The total cost was $335,000. The cost of drainage, including a concrete pipe, is placed at $10,000.

As well as providing for transcontinental airport facilities, this port makes available private instruction in civilian pilot courses.

Jointly Operated Airport at Durham, N. C.

IN line with a growing tendency toward joint ownership, the cities of Raleigh and Durham, N. C., together with their counties of Wake and Durham, are completing the construction of a jointly owned airport midway between Raleigh and Durham.

The joint ownership of this airport is paralleled by three other projects. The Asheville-Hendersonville-Henderson County airport in North Carolina; the Tri-City airport near Kingsport, Tenn.; and the McGhee-Tyson airport in Knoxville, Tenn. Dallas, Fort Worth and Arlington, Texas, also are considering airports under the joint ownership arrangement.

Airport Traffic Control Completed and Unified

AIR traffic has been speeded and unified under the coordinated "approach control" procedure adopted recently by the Civil Aeronautics Administration.

This new system requires that jurisdiction of arriving and departing aircraft be transferred from an airway control center to a control tower.

This procedure is made possible by the fact that the Civil Aeronautics Administration has taken over most of the major towers in the country. The administration expects to operate 117 of these towers and at present already has control of 69.

According to a supplement to "Manual 60" now being printed, the procedure essentially presents these changes:

1—The pilot will maintain direct communication with the airport control tower by the voice channel of the radio range airway traffic control center having jurisdiction.

2—Under instrument flight rules an aircraft will be cleared to a holding fix by the center. The center will include instructions in the holding clearance for the aircraft to hold "until further advised by the airport tower."

New Airport of Peoria, Ill.

AUGUST 30, 1942, witnessed the dedication of a new 510-acre airport at Peoria, Ill., built jointly by the city and WPA. The airport has four major concrete runways—two are 150 feet wide and more than 4,000 feet long, while the others are 100 feet wide and 3,700 feet long. The runways are of 8-6-8-inch cross sections; 230,000 sq. yds. of concrete were used.

The project was built in accordance with plans approved by the Civil Aeronautics Administration and was supervised by R. M. Johnson, airport engineer, employed by the city especially to plan this job and supervise its construction.

Two small planes land on Peoria's new municipal airport. This airway was built cooperatively by the city's park department and WPA with plans approved by the Civil Aeronautics Administration.

REAL PROTECTION

In the olden days a knight in armor was the only protection the less fortunate had against those who would plunder and destroy. They practiced eternal vigilance and lived their motto—"Be Ye Always Ready."

Today, far-sighted municipalities rely upon the dependable Mueller-Columbian Fire Hydrant to protect them from the ravages of fire. For, like the knight of old, here is a sturdy servant that silently stands guard twenty-four hours a day, "always ready" to swing into action when needed—and without failures!

And here is why. The self-oiling top keeps all working parts immersed in a bath of oil. No parts ever rust, the hydrant cannot stick, and the bonnet is always dry. It opens instantly—to protect you—anytime! . . . The main valve is of superior design to deliver large volumes of water in a minimum of time without water hammer. There is no trick mechanism to get out of order. Large dual bronze-bushed drain valves positively keep the barrel dry when not in use. Cannot freeze—ever! . . . Should the hydrant be struck a smashing impact, the damage is confined to a safety flange and coupling which can be replaced at a cost of but a few dollars, and the hydrant can be back in service protecting your city in less than an hour.

For certain protection and actual savings in money to your community, specify MUELLER-COLUMBIAN Fire Hydrants for every new hydrant or replacement.

MUELLER CO.

CHATTANOOGA, TENN.

Autocar Half-Tracks

TEAM FIRE-POWER WITH HORSE-POWER

ARMY (E) NAVY

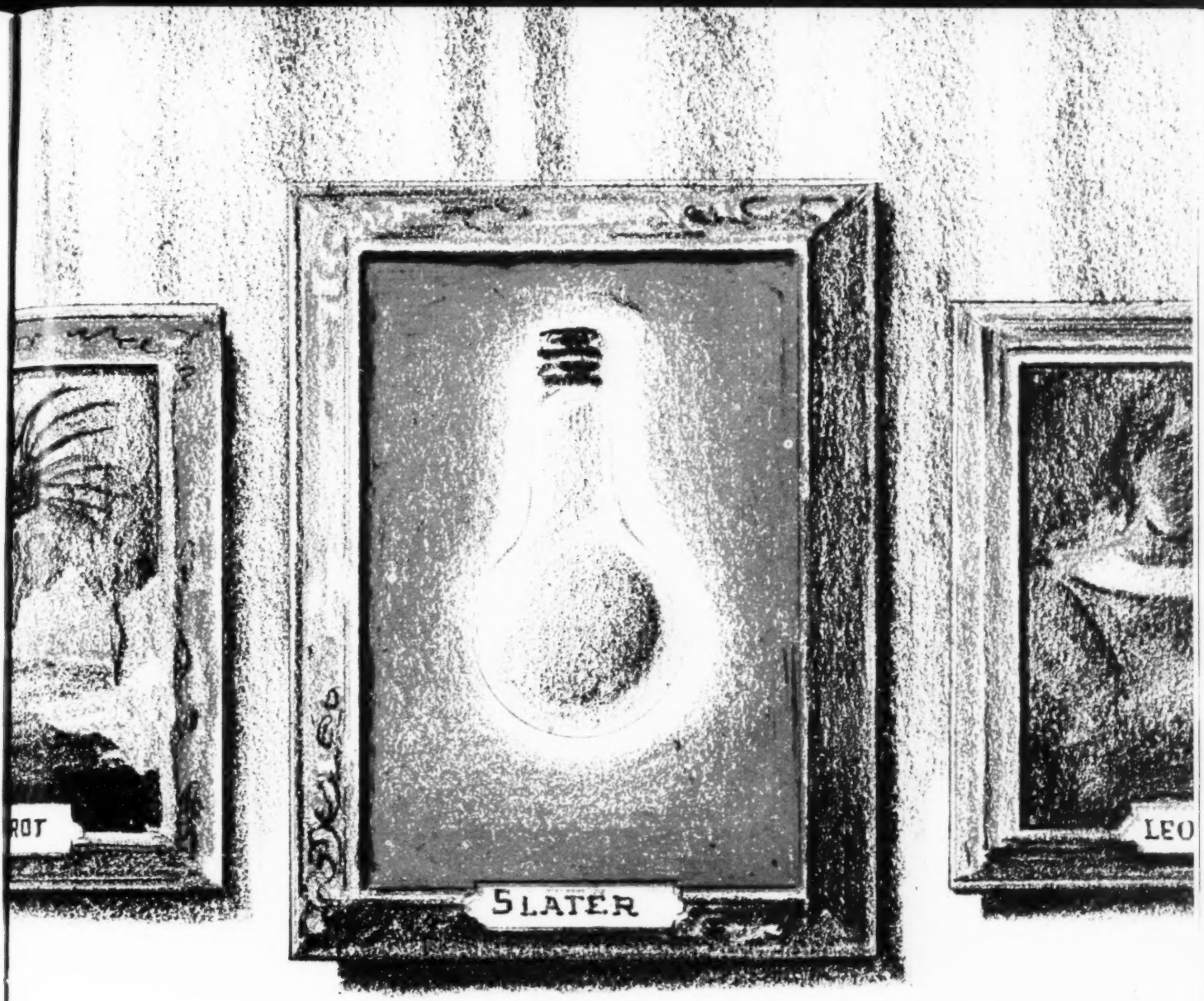
AWARDED AUGUST 1, 1942...
"FOR EXCELLENCE
OF PRODUCTION"

Wicked in its war-paint and bristling with cannon, your Autocar today is a big, burly, lunging brute . . . a *mobile fort* to carry the battle to the enemy, to shorten the road to peace. Yet, for all its fierce power, it is amazingly nimble, responsible to the controls. It is still an Autocar!

Tomorrow's Autocars will be even better for having had this combat experience. Creative fires burn at white heat in the crucible of war, out of which pour improvements vital to Victory today, advantageous to industry tomorrow. Keep your pledge to the U. S. Truck Conservation Corps. Your trucks are your own, but their life belongs to the Nation.

AUTOCAR

MANUFACTURED IN ARDMORE, PA. — SERVICED
BY FACTORY BRANCHES FROM COAST TO COAST



The Technique of **STREET LIGHTING** *is also an Art –*

BEGINNING WITH THE LAMP itself a guild of masters blaze the trails to carry American life around the clock. Through mazes of urban paths to rural reaches, many specialists lend touches to produce the ideal in illumination suited to special needs.

In the Slater Laboratories, specialists design for efficient illumination—Production specialists assemble the product for economical life—Utility specialists add the touches for local effectiveness and safety—Maintenance specialists carry on with economical group replacement.

The Slater organization prizes its cooperation with specialists in cities and municipalities across the country whose work it is to provide street lighting lamps and traffic lights.

By specializing in lamps for these specialized services an Art is provided which continually grows through intensive, cooperative development.

Immediate shipments available from stock.

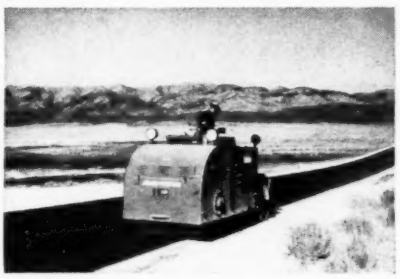
SLATER ELECTRIC & MFG. CO.
BROOKLYN, N.Y.

Makers of Special Precision ELECTRONIC TUBES *for the U.S Army and Navy*

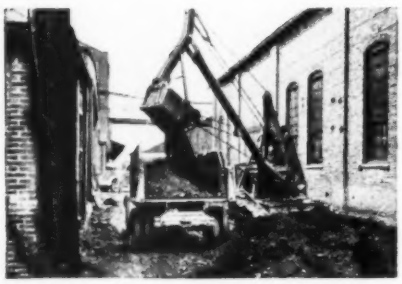
IMPOSSIBLE!

Building a big airfield for a Big Job with a 99-M Power Grader.

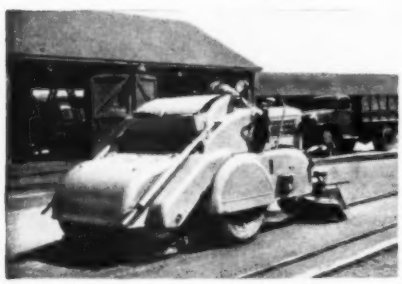
To get from "here to there fast," miles of vital roads are being completed with Austin-Western Rollers.



A fast moving production line turning out tons of crushed rock for Uncle Sam; it's an Austin-Western.



Excavating area between two buildings that will soon be roofed to increase war production. Unit is an A-W Badger.



This A-W Air Corps Sweeper cleans runways and hangars and also driveways flanking storage and supply areas.

THAT IS WHAT HITLER and the Axis thought when initial war plans were announced and unheard-of quotas were demanded by our President. One factor was overlooked: The American way of *meeting impossible schedules on time*—even beating them. . . . Our enemies have already felt the impact—their time tables are now off schedule—and we are only beginning.

Back of these accomplishments lie some of the hardest work and smartest planning, mixed with the finest examples of whole-hearted cooperation and sacrifice, ever witnessed. To those responsible for these accomplishments—especially the engineering, construction and maintenance of vital roads and streets, essential airfields, depots, camps, seabases and munition plants—we salute with admiration. To be of assistance in supplying the equipment or service needed has been and will continue to be a privilege. THE AUSTIN-WESTERN ROAD MACHINERY CO., Aurora, Illinois, U.S.A., Distributors in Principal Cities; Cable Address: AWCO, Aurora.

BUILDERS OF ROAD MACHINERY

Austin Western

SINCE 1859

FOR THE DURATION—the output of "99-M's" has been earmarked for essential war use. If we can assist you on jobs carrying ample priority, or if we can service your present machines, it will be done in the best possible and most satisfactory manner. Austin-Western Distributors are accommodating and you can go to them with confidence. They know equipment and its operation and they have the tools and facilities to serve you well.

Keep Up-to-Date on New Equipment

Please check over the following list of interesting catalogs obtainable free of charge and either write direct to the manufacturers for their literature, or, if you prefer, put a circle around the identifying numbers below to indicate the catalogs you want, mail this coupon to The American City Magazine, 470 Fourth Ave., New York, and we will see that the catalogs are sent to you without expense or obligation on your part.

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Name ..... Position .....

Address .....

Locating Buried Pipes

520. The bulletin "The M-Scope," describing the Fisher pipe finder, will be of great interest to city officials who are now faced with a shortage of manpower and with additional responsibilities regarding the maintenance of their utilities. This pipe finder makes it no longer necessary to guess at the location or to wonder how deeply the pipes are buried. It uncovers information on dead ends, manholes, and drip boxes, and gives positive evidence of illegal or unauthorized connections. To get your copy of this bulletin write to the Joseph G. Pollard Co., Inc., 142 Ashland Pl., Brooklyn, N. Y.

Branch Connections to Water Lines

521. You can either buy or rent Smith tapping machines which will make it possible to install branch connections to your distribution system without interrupting the continuous flow of water to other points on the same line. These machines make taps from 2 to 42 inches. The catalog distributed by The A. P. Smith Mfg. Co., East Orange, N. J., fully describes the tapping machines.

Water Sterilization

522. The Mathieson Alkali Works, Inc., 60 E. 42nd St., New York, is ready to give you valuable and essential information on the use of various types of chlorine products in water sterilization work. The war has introduced new problems in this field, and municipal officials should be informed on how to best cooperate in order to still give the protection required to their communities.

Accurate Water Meters

523. Water-works operators will be interested in the literature furnished by the Worthington-Gamon Meter Co., Harrison, N. J., describing this company's water meters which are outstanding in their ability to operate accurately over a long range of years.

Uniforms for City Employees

524. Descriptive leaflets are available from Reeves Brothers, Inc., 54 Worth St., New York, describing the material particularly well suited for use in uniforms for municipal employees. This same material is finding use in uniforms for the U. S. Army. Reeves Army Twill meets exacting Army tests for better wear, longer life, and colorfastness. The Glengarrie Poplin used in shirts comes in a wide range of colors. Both are sanforized against shrinkage.

Cleaning Sewer and Catch Basins

525. You may obtain descriptive literature from the Champion Corp., 4716 Sheffield Ave., Hammond, Ind., describing portable and easily operated catch-basin cleaners useful in every sanitation department. The small bucket is one of a wide range of sewer-cleaning equipment furnished by this company.

Meeting Drainage Problems

526. If you are having difficulty solving drainage problems and do not have a high priority to help you out, the Armco Drainage Products Assn., 685 Curtis St., Middletown, Ohio, can still help you. Literature that the association is distributing describes the non-critical wood drainage pipe manufactured to meet wartime conditions. It is easy to handle and should serve adequately until permanent pipe becames available.

Fire Protection with Carbon Dioxide

527. The American City is gathering data on the use of carbon dioxide in fire prevention, particularly in regard to the protection of vital municipal records, libraries, museums, or other places where the measure of the loss not only through fire, but water damage as well, could not be calculated in dollars and cents. Interested city officials may obtain these data as they develop by writing to this magazine. In your letter, be sure to outline some of the problems that this type of protection may be able to meet.

Timber Structure Designs

528. A highly valuable book on typical designs of timber structures will be furnished by the Timber Engineering Co., 1319 Eighteenth N.W., Washington, D. C., to engineers and municipal officials giving typical designs of timber structures. Roof trusses, bridges, trestles, towers, grandstands, all are discussed in this booklet. This company also is ready to cooperate with engineers or officials on the analysis and design of timber structures not covered by this book.

Controlling Water Levels

529. Specifications are available from the Golden-Anderson Valve Specialty Co., Fulton Bldg., Pittsburgh, Pa., describing this company's useful single-acting semi-throttling altitude valve. It will control the level in a standpipe or tank at any desired elevation, is highly sensitive, self-contained, and is particularly useful where a low head is maintained against higher influent pressure.

Payroll Accounting

530. You can obtain useful information on payroll accounting that will greatly expedite your municipal department in handling the volume of work created by wartime conditions. Tax deductions and war savings bonds deductions both complicate older procedures, and the new information furnished by the Burroughs Adding Machine Co., Detroit, Mich., will help you simplify your bookkeeping methods.

Long-Wearing Pumps

531. Publication P. 2537, issued by the De Laval Steam Turbine Co., Trenton, N. J., describes the many long-wearing and convenient features typical of the modern pumps that this company makes. The simplicity and ruggedness of the parts make maintenance and repairs a simple problem that can be handled by ordinary workmen.

Water Conditioning

532. In planning for the post-war improvement of water supplies, city officials will obtain a great deal of help from the booklet on water conditioning published by The Permutit Co., Dept. G3, 330 W. 42nd St., New York. This company points to the many advantages that its equipment will give a community in overcoming problems of hard, turbid water.

Cleaning Tile Surfaces

533. You can obtain from the Pennsylvania Salt Mfg. Co., Dept. AC, 1000 Widener Bldg., Philadelphia, Pa., a free sample of Tilite used to clean and improve tile surfaces such as swimming pools and similar areas. The company states that this cleanser cleans both chemically and economically, removing embedded dirt and taking off stains and discolorations. It does not make the surface slippery.

Water- and Sewage-Treatment Equipment

534. Iowa Valve Co., Hubbell Bldg., Des Moines, Iowa, furnishes catalogs and full information on a complete line of equipment for water works, filtration and sewage-disposal plants. In addition their latest Corey hydrants will be of interest to water-works men.

New Type Flocculator for Water or Sewage Treatment

535. Link-Belt's Straightline Mixers for flocculation tanks are explained in folder No. 2042 issued by Link-Belt Co., 307 N. Michigan Ave., Chicago, Ill. The flocculating paddles have been turned 90 degrees in the tanks so that they now revolve at an angle perpendicular to the flow through the tank. This produces a spiral mixing action which is reported to be an improvement over the method previously used. Stage flocculation also is discussed.

(Continued on page 24)

SMITH EQUIPMENT

★

A NAME TO REMEMBER

When you want good Water Works Equipment

And SMITH is a name waterworks men thruout the country have found it worth while to remember!

Our experience gained in over 50 years of service enables us today to stand ready to help you get the best water works equipment available. Our men are experts in their profession and their skilled craftsmanship is known the world over.

When You Need Any Of The Following:

★	WATER METERS—disc, current, disc-compound, current-compound.	**Write for Booklet 42 MF**
★	VALVES—HYDRANTS—for heavy and high-pressure service.	**Write for Booklet 42 VH**
★	TAPPING AND INSERTING VALVES, machines and accessories.	**Write for Booklet 42 M**
★	CORPORATION AND CURB COCKS, PIPE CUTTERS, REPAIR SLEEVES, REMOVABLE PLUGS, INDICATOR POSTS, ETC.	**Write for Booklet 42 Misc.**

★

OTHER SMITH PRODUCTS

Valves and Hydrants
Valve Inserting Machines
Tapping Sleeves
Tapping Valves
Hat Flanges
and Water Meters

Write for Catalog

Branches

7 So. Dearborn St., Chicago, Ill.
409 Texas St., El Paso, Texas
315 N. Crescent St., Flandreau, S.D.
901 Wm. Oliver Bldg., Atlanta, Ga.
59 Oak Vale Ave., Berkeley, Calif.
524¼ First Ave. S., Seattle, Wash.
1317 Oakley St., Orlando, Fla.

THE A. P. SMITH MFG. CO. EAST ORANGE NEW JERSEY

WHICH OF THESE CATALOGS WOULD YOU LIKE?

(Continued from page 23)

Street Lighting Replacement Parts

536. Information and literature covering a variety of outdoor-lighting requirements are available from the Line Material Co., 804 North Eighth St., Milwaukee, Wis. City officials will find data on replacement parts particularly useful.

Protecting Municipal Utilities

537. Catalog No. 79 on Stewart Iron Chain Link Wire Fences will give valuable guidance to city officials having the responsibility of protecting their municipal utilities. While the manufacture or sale of such fencing is prohibited under Conservation Order M-126, the manufacturer offers its literature to interested municipal officials for future planning purposes. Write The Stewart Iron Works Co., Inc., 921 Stewart Block, Cincinnati, Ohio.

Water-Purification Equipment

538. A full listing of water-purification equipment to meet practically any type of treatment is described in literature available from Infilco, Inc., 325 W. 25th Pl., Chicago, Ill.

Tar and Asphalt Heating Equipment

539. You can obtain a catalog from the Connery Construction Co., 4000 N. Second St., Philadelphia, Pa., describing this company's tar and asphalt heating kettles, spraying attachments, and pouring pots that are so useful in street-maintenance work.

Emergency Sterilization

540. Bulletin EMM, giving valuable data on emergency sterilization practices, is available from Proportioneers, Inc., 99 Codding St., Providence, R. I. It tells of the Dual Drive Chlor-O-Feeder and the part it plays in the emergency programs, actively supported by meter-operated main sterilizers, all hydraulic feeders, and the Blitz-Buggy trailer unit.

Cleaning Sewers

541. An informative catalog may be obtained from the Expanding Sewer Machine Co., Nappanee, Ind., describing the Sure Grip sewer rods and accessories so useful in maintaining sewer lines. These rods are joined together with a dual lock to form a rigid chain that will float in the sewage stream. They may be coupled or uncoupled on the street.

Concrete Pressure Pipe

542. Information is available from the Lock Joint Pipe Co., Ampere, N. J., describing this company's reinforced concrete pipe. The pipe maintains its original high carrying capacity for many years. The unusual elasticity and flexibility of the expansion joints safeguard each pipe length under the stress of sudden and unequal earth movement.

Venturi Meters

543. Bulletin 293B issued by the Builders-Providence, Inc., 9 Codding St., Providence, R. I., describes this company's venturi meters so useful in accurately recording main line flows. This latest bulletin emphasizes new features valuable to municipal officials.

Testing Water Mains

544. Circulars and complete information are available from the Test Plug Mfg. Co., Skokie, Ill., describing their new "Hold Firm" test plug useful in water-works construction. Pipe may be tested as laid with this equipment. Reclaimed pipe, valves, and fittings also may be tested without difficulty. Its simple operation makes it easy to be used by even unskilled labor.

Wrought Iron Pipe

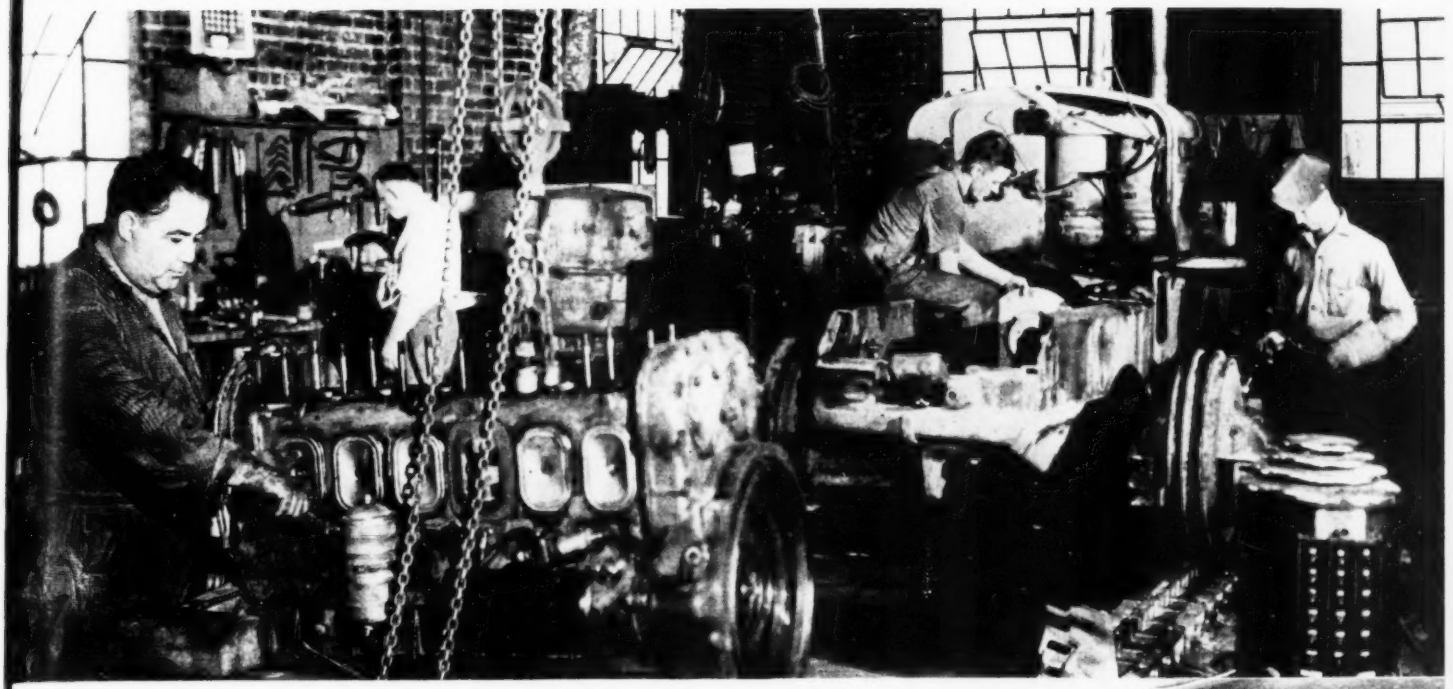
545. An unusually colorful and easy-to-read new technical bulletin entitled "Wrought Iron for Underground Services" has just been released by the Engineering Service Department of A. M. Byers Co., Pittsburgh, Pa. Designed to be of service to municipal water-works engineers, electrical and civil engineers, plant-maintenance men, and others, the new booklet discusses the most important factors effecting soil corrosion of underground piping; weighs theory against test results; and outlines installation histories of water wells and lines, lawn sprinkler piping, oil and gas wells and lines, gasoline lines and tanks, and electrical cable conduit.

Punched Cards in Municipal Accounting

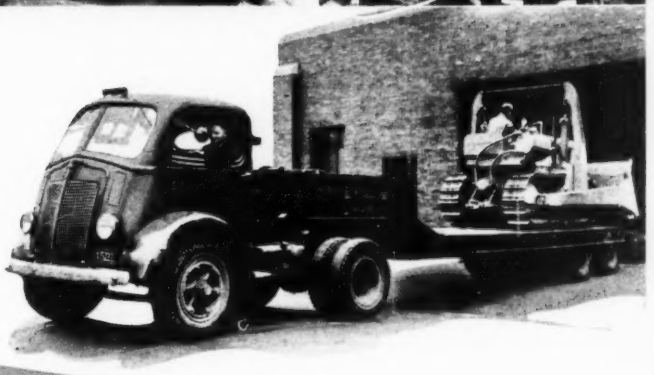
546. International Business Machines Corp., 590 Madison Ave., New York, has a number of informative folders covering the use of punched cards in municipal accounting. These give complete details on how the cards are used in particular cities. Write the company and ask for those bulletins dealing with cities having characteristics similar to your own.

(Continued on page 26)

A New, Faster, Better Service Plan



EQUIPMENT OWNERS FIND IT PAYS TO HAUL 'EM IN FOR REPAIRS . . .



Here is a new service plan — of far more benefit to equipment owners. Instead of calling out dealer mechanics to make repairs . . . it's proved to be much better, faster, more economical to haul your outfits to the dealer's shop. Working in comfort, with warm fingers, proper illumination and the right tools, dealer mechanics find they are able to do more justice to a job, and do it quicker. They have the supervision and expert help of the shop foreman — every problem is quickly solved. Parts go farther — worn out or broken sections are fixed up where possible . . . easily, quickly replaced where necessary. Special tools are available to speed the job — clean surroundings assure proper handling of delicate Diesel parts. In addition, your operators who bring in the machines, work with the mechanics . . . thereby help cut the cost of the work and learn plenty about the care and maintenance of the outfits.

The cost of transporting the machines is surprisingly small . . . and usually they are back on the job sooner . . . ready to work longer. Find out for yourself how well you will like this shop plan. Next time your units need repairing . . . haul 'em into your Allis-Chalmers dealer. He's equipped to do your work right, fast and at bigger savings!

HOW THE SHOP PLAN IS WORKING OUT IN ONE TERRITORY!

"It is surprising how much better the customer has been satisfied and how little it costs to transport the tractor to and from our shop. We are turning out more tractors . . . do a better job . . . get better acquainted with the owners and operators," says Walling Tractor & Equipment Company, Allis-Chalmers dealer at Portland, Oregon.

WARTIME SERVICE FROM YOUR ALLIS-CHALMERS DEALER

1 **PARTS ASSISTANCE** — Information on availability of parts and how to obtain them.

2 **PRIORITY ASSISTANCE** — Who can get new equipment and how! Up-to-date information on latest regulations.

3 **LIMITATION ORDERS** — Interpretation of latest government limitation orders affecting construction equipment.

4 **EQUIPMENT EXCHANGE** — Serves as information center on used equipment available in territory.

5 **PLANNING ASSISTANCE** — Consultation on your street plans. Cost estimates. Most economical machines to use.

6 **REBUILDING FACILITIES** — Enlarged, modern shop facilities to handle rebuilding with speed and efficiency.

7 **SERVICE EDUCATION** — Instructions on how to operate and service equipment correctly. Provides service school instructors.

8 **REPAIRS AND MAINTENANCE** — Quick, efficient repairing by skilled, factory-trained mechanics, using the right tools and genuine parts.

9 **USED EQUIPMENT** — In some instances, good rebuilt construction equipment may be available.

10 **RENTALS** — Good used equipment may be available for temporary emergencies.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE, U. S. A.

If the picture looks black

—if the consumer-demand for water in your City is rising daily, without any immediate prospect of being able to buy new pipe, water tanks, pumps, etc. (at least, not in the near future, without considerable difficulty)—do not despair!—There's a big ray of hope on the horizon:—

of Water Main Cleaning!

So—don't let the priorities situation get you down! First try putting your mains in first-class condition by THE NATIONAL METHOD of water-main cleaning. It will probably improve the carrying capacity of those mains 30 to 50%, enabling you to take care of that increased consumer-demand economically, and to the satisfaction of all.

NATIONAL has the *equipment* and the *experience* to meet all sorts of pipe-cleaning conditions —with pressure and power-operated equipment to take care of all sizes of pipes. *Write:*

The National Water Main Cleaning Co.

30 Church St. Branches: New York

113 Peterboro St., Boston, Mass. 406 Fla. Theatre Bldg., Jacksonville, Fla.
910 William-Oliver Bldg., Atlanta, Ga. 205 W. Wacker Dr., Chicago, Ill.
7103 Dale Ave., St. Louis, Mo. 501 Howard St., San Francisco, Calif.
3812 Castellar St., Omaha, Neb. 2028 Union Ave., Montreal, Can.

WHICH OF THESE CATALOGS WOULD YOU LIKE?

(*Continued from page 24*)

Water Purification with Ozone

547. The Technicraft Engineering Co., 5610 South Soto St., Los Angeles, Cal., will send its bulletin describing the Model A and B Purification Units that use ozone for the sterilizing agent. This company asserts that this type of purification results in an improved water that does not have disagreeable tastes or odors. Also, that residuals may be obtained that are effective for periods as long as in the more customary types of sterilization. Over-sterilization, the company asserts, is impossible. Small sterilizers using the ozone principle are useful in applications such as swimming pool sterilization or other places where relatively limited quantities of pure water are required.

Floatless Liquid Level Control

548. Accurate control of liquid levels by all-electric floatless controls is thoroughly explained in the literature by the B/W Controller Corp., 2200 East Maple Road, Birmingham, Mich. These controls, the manufacturer asserts, do a more accurate job than the older type of equipment.

Facts on Asphalt Paving

549. Whether planning for street improvement work in either war or peace, municipal officials should have the facts before them regarding the durability, economy, upkeep, and riding qualities of asphalt paving. This information is explained clearly in literature furnished by The Texas Company. Write to its Asphalt Sales Department, 135 East 42nd St., New York, for literature fitting your particular requirements.

Municipal Electricity and the Tax Burden

550. Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Ill., has significant literature and valuable data on the part that municipal electric plants can play in reducing the city's tax burden. In addition to this literature, it has also a staff of resident engineers who are familiar with local conditions and progress and who are in a position to cooperate with city officials interested in the studies.

Mud-Jacks Reduce Maintenance Costs

551. The new Mud-Jack Bulletin, issued by the Koehring Co., Milwaukee, Wis., illustrates the applications and describes the methods that this versatile type of equipment can perform. Maintenance costs can be reduced as much 75 per cent, the manufacturer asserts. The equipment may be used to raise sunken concrete in walks, curb and gutter, driveways, streets, playgrounds, and many other related places.

Modern Accurate Water Meters

552. The Badger Meter Mfg. Co., Milwaukee, Wis., has illustrated literature on their new "Mars" water meters made with tough, durable housing thoroughly protected from rust and corrosion. Careful combination of metal in the mechanical parts has insured the saving of a maximum amount of bronze without losing any of its durability.

Street-Grader Maintenance

553. You can obtain from the J. D. Adams Co., Indianapolis, Ind., valuable maintenance information that will help you keep your road and street graders in shape for the duration. This company has a 9-point program that covers the condition of the engines, the lubrication, electrical system, and general operating procedure.

New Design Features in Cast-Iron Pipe

554. You should have information on the new type of design that the Cast Iron Pipe Research Assn., Thomas F. Wolfe, Engineer, Peoples Gas Bldg., Chicago, Ill., is incorporating in modern pressure pipe. This design incorporates principles which will further insure long and useful service for this type of pipe, and the Association states that these features are important enough to make the pipe worth waiting for.

Check Valves

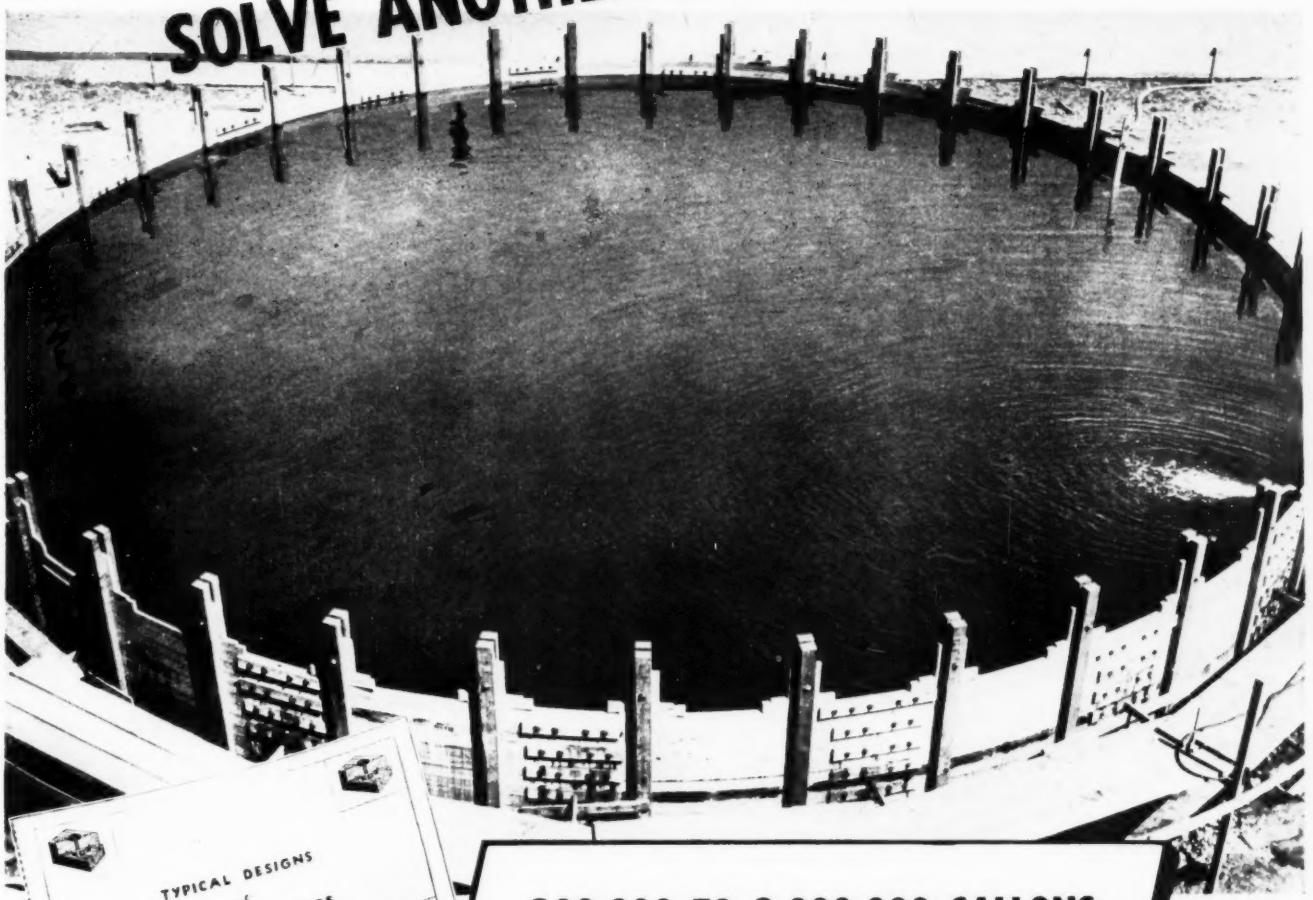
555. A book of test results and engineering data is available from The Chapman Valve Co., Indian Orchard, Mass., covering the Chapman non-slam check valve. Designed on the same principle as an airplane wing, it will ride evenly in the flow of the liquid and move to a drop-tight seat when the checking action is required. The design reduces wear and head loss to a minimum.

Tight Joints in Water Mains

556. Municipal officials should have data furnished by The Leadite Co., Girard Trust Co. Bldg., Philadelphia, Pa., explaining the uses of this jointing product in making tight connections in cast-iron water mains so essential for the maintenance of public health. This material, according to the manufacturer, may be melted and poured, and requires no large bell holes to dig. It effects marked savings in operating costs.

Timber Tanks

SOLVE ANOTHER MUNICIPAL PROBLEM



TECO RINGS Solve Many Engineering Problems

This book brings you, without cost, 45 Typical Designs of Timber Structures—Roof Trusses for all purposes, Bridges and Trestles, Towers, Grandstands, Markets, Wharves, Bins. Just write us today for your *Free* copy, using your professional letterhead. Address Timber Engineering Company, 1319 Eighteenth Street, N. W., Washington, D. C.

200,000 TO 2,000,000 GALLONS

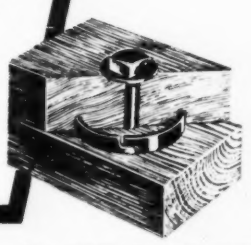
for Water . . Oil . . Sewage

High-capacity storage tanks of wood are now available to municipalities as a result of this radically new, war-born design.* The staves, prefabricated, are built up *horizontally* so that, for the first time, their structural strength is brought into play. The staves, themselves, take the tension from the pressure of the fluid contents—instead of serving merely as the wall of the tank, as in the familiar *vertical* stave construction. Need of steel banding is entirely eliminated . . . two-thirds less steel is used . . . and one-half less lumber.

TECO Split-Ring Timber Connectors, embedded in all joints, provided the high-efficiency union of members which made this design possible.

These tanks are of great strength. They are long-lived. And, they are very economical. For detailed data, address the fabricators, Henry Mill & Timber Co., Tacoma, Washington.

* *Patented*



The TECO Ring Connector spreads the load on a timber joint over practically the entire cross-section of the wood.

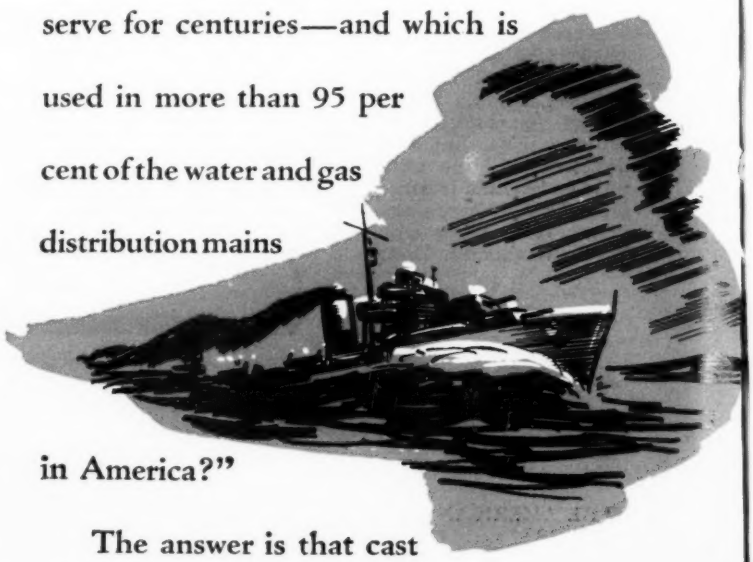
Timber ENGINEERING COMPANY

WASHINGTON, D. C. **PORTLAND, OREGON**

–this improved cast iron pipe based on a new *Law of Design*

EXCEPT for those who have bought and installed cast iron pipe recently, in connection with a war project or war industry, few pipe users have laid the improved pipe now being made by our members—cast iron pipe that is not only *better* than ever but more *economical* than ever.

You may ask—"How can there be room for a major improvement in a product which is almost universally accepted as the standard—which is known to serve for centuries—and which is used in more than 95 per cent of the water and gas distribution mains in America?"



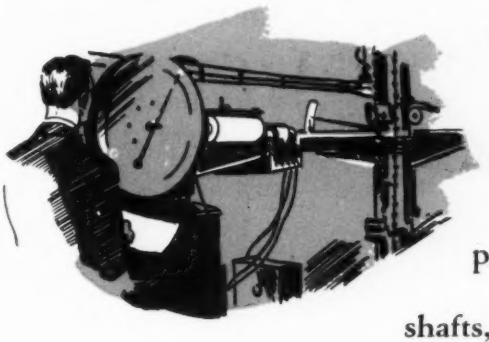
The answer is that cast

iron pipe is now *specifically designed for specific laying conditions*—and is made in accordance with the recently adopted A. S. A. Law of Design for cast iron pipe in underground service. An answer that has been worked out by consultants who *specify* pipe, by engineers who

install pipe, and by the metallurgists and production experts of our members who *make* pipe. Far from an overnight achievement, it is the result of ten years of cooperative study and scientific research under the auspices of the American Standards Association.

The advantages are obvious. No more under-guessing or over-guessing as to weights and thicknesses required. No longer need you specify, for *all* conditions, pipe that is designed for *worst* conditions. The potential aggregate saving in extra metal, and resultant economies for the utilities using cast iron pipe will be considerable.

But the cast iron pipe you buy today, as priorities and allocation of raw materials permit, is still further improved. Under the pressure of wartime urgencies, our members have crowded into months, engineering and production developments that might otherwise have taken years. Improvements in test technique and in laboratory controls from raw materials to finished product. Improvements in facilities made necessary by the wide range of war materiel we are producing or machining in our foundries and machine shops—guns, shells, tank and plane parts, propeller shafts, machine tool parts—to mention a few.



So when you get cast iron pipe for civilian uses it will be better than ever—scientifically designed for specific laying conditions—pipe that you will say was worth waiting for. Cast Iron Pipe Research Association, Thomas F. Wolfe, Engineer, Peoples Gas Building, Chicago, Ill.

CAST IRON PIPE
RESEARCH ASSOCIATION, CHICAGO
CAST IRON
NO. 1 TAX SAVER

WARREN

4" to 16"

SPUN CENTRIFUGAL

CAST IRON PIPE

The above illustration shows the method of handling this superior pipe. *Write for our new catalog describing* WARREN SPUN CENTRIFUGAL PIPE.

Warren has cast iron pipe in sizes 2 in. to 84 in. to meet your every need; *specializes in* THREADED CAST IRON PIPE for filtration systems, golf links, sprinkler systems, etc., sizes 1½ in. to 12 in. *and invites your inquiries.*

Also has the finest of special castings, bell and spigot, flange, flexible joint, culvert, milled and plain end tubes, cylinders, flanged and bell spigot fittings, high-pressure fire service pipe and WARREN Short Body Specials.

Write for catalogs.

WARREN FOUNDRY AND PIPE CORP.
11 Broadway, New York

WARREN PIPE CO. OF MASS., INC.
75 Federal St., Boston

LEADITE

FOR JOINTING CAST-IRON WATER MAINS

Melted and Poured ***No Large Bell-holes to Dig***

Saves at Least 75%

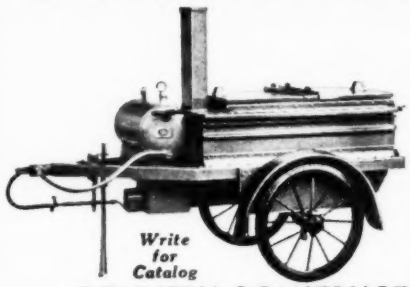
Leadite is shipped in powder form, packed in sacks of 100 lbs. net each
Leadite tested and used for over 40 years • Leadite joints improve with age

Be sure it is Leadite and accept no imitations

THE LEADITE COMPANY
Girard Trust Co. Bldg., Philadelphia, Pa.

No Caulking

CONNERY'S



Write for Catalog

TAR and ASPHALT HEATING KETTLES

•

SPRAYING ATTACHMENTS

•

POURING POTS, etc.

CONNERY CONSTRUCTION CO.
4000 North Second St. Philadelphia, Pa.

AN ADDRESS OF *Distinction in* **CHICAGO**

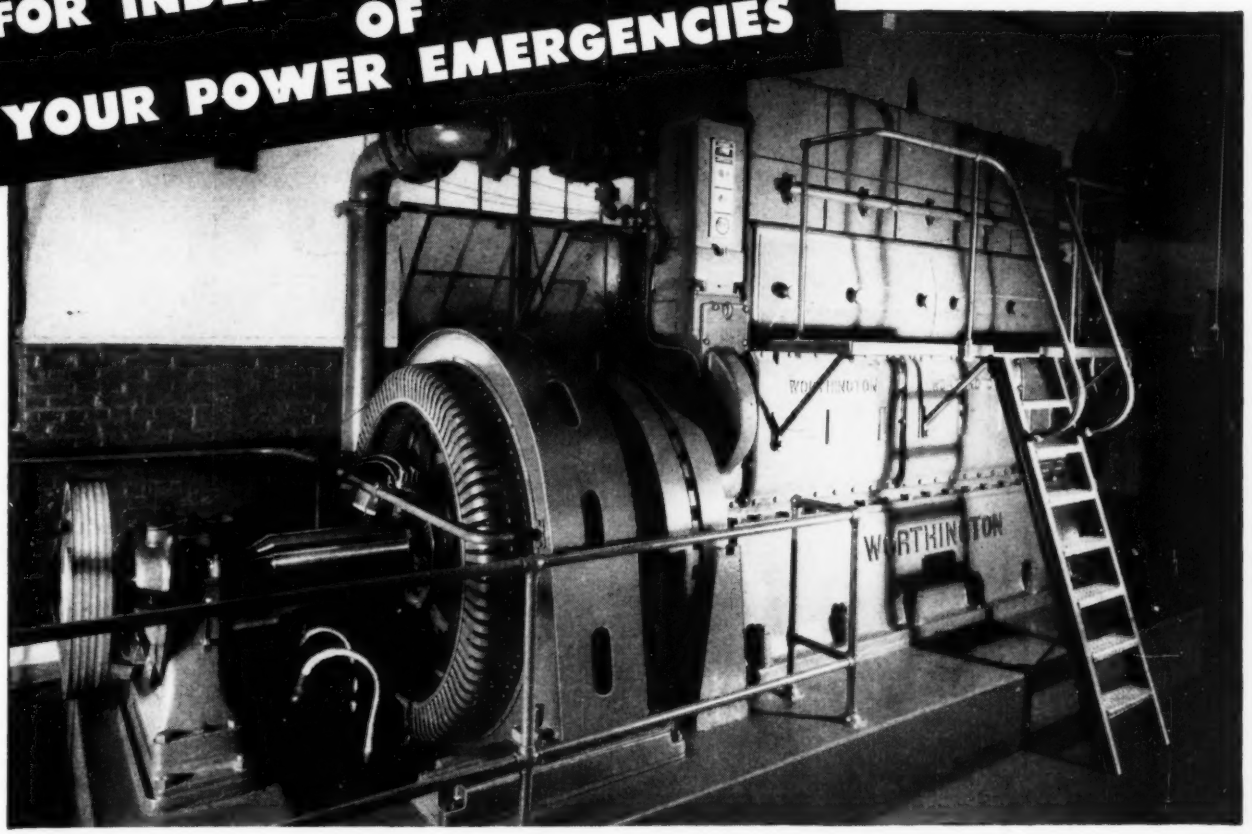
on the famous **GOLD COAST**

The Drake . . . on the shores of beautiful Lake Michigan . . . offers every most desired convenience to the visitor in Chicago. Close to shopping centers, theatres, movies, smart night clubs, and ball parks. Fast transportation to all parts of Chicago and suburbs. Splendid guest accommodations. Superb entertainment and dancing in the Drake's exotic Camellia House. Away from the noise and congestion of the Chicago Loop—yet, only 5 minutes from Downtown.

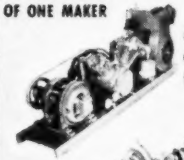
A. S. KIRKEBY, *Managing Director*

The Drake
Lake Shore Drive at Michigan Ave. CHICAGO

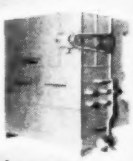
FOR INDEPENDENT CONTROL OF YOUR POWER EMERGENCIES



WORTHINGTON AUXILIARIES
GIVE ADDITIONAL SERVICE SECURITY THROUGH UNDIVIDED RESPONSIBILITY OF ONE MAKER


Air compressors for starting

Centrifugal pumps for jacket water circulation


Evaporative coolers for jacket water cooling

Rotary pumps for fuel oil transfer

In power generation, as on the battlefield, war calls continually for a measure of effort momentarily greater than normal.

When it's additional power that is needed, a Worthington diesel or gas engine-generator unit provides a reliable source, instantly available on call. Such an installation gives you independent control of your power emergencies.

●

Hundreds of Worthington engines are now carrying important parts of the United Nations' war power load.

DIESEL ENGINES
150 to 1500 hp.

GAS ENGINES
175 to 2880 hp.

CONVERTIBLE GAS-DIESEL ENGINES
150 to 1500 hp.

Both the Navy E and Army-Navy E Awards have been presented to Worthington for speed and excellence in production.

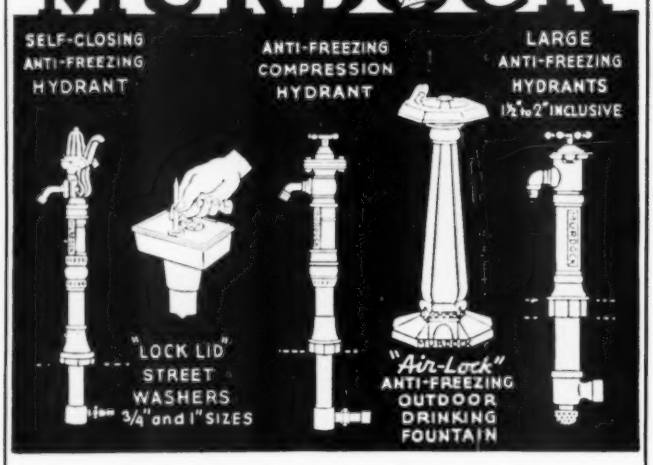
DE3-2A

WORTHINGTON
WORTHINGTON PUMP & MACHINERY CORPORATION • GENERAL OFFICES: HARRISON, N. J.

The Most Reliable Name on Water Service Devices

MURDOCK

SINCE 1858


SELF-CLOSING ANTI-FREEZING HYDRANT
ANTI-FREEZING COMPRESSION HYDRANT
LARGE ANTI-FREEZING HYDRANTS 1½" to 2" INCLUSIVE
"LOCK LID" STREET WASHERS ¾" and 1" SIZES
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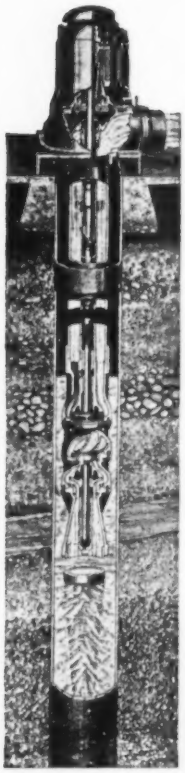

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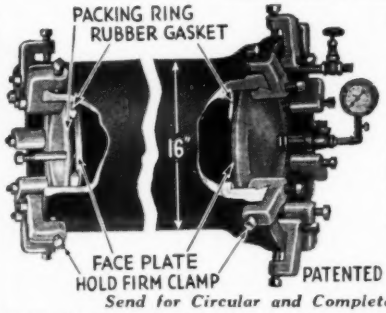

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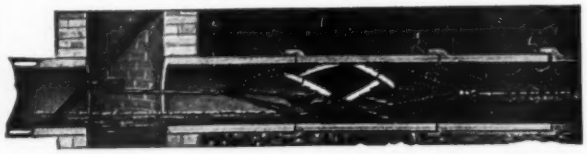

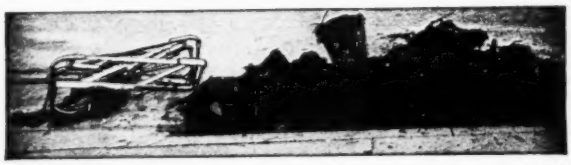

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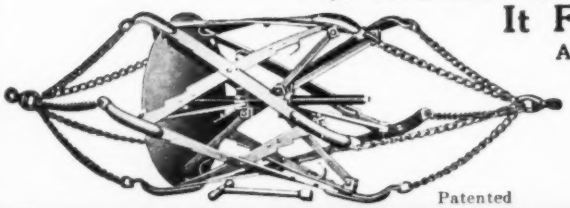

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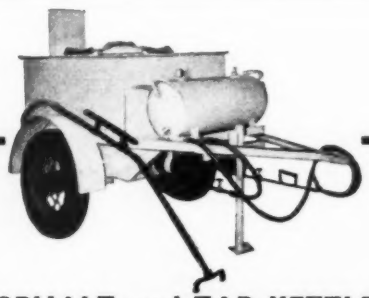

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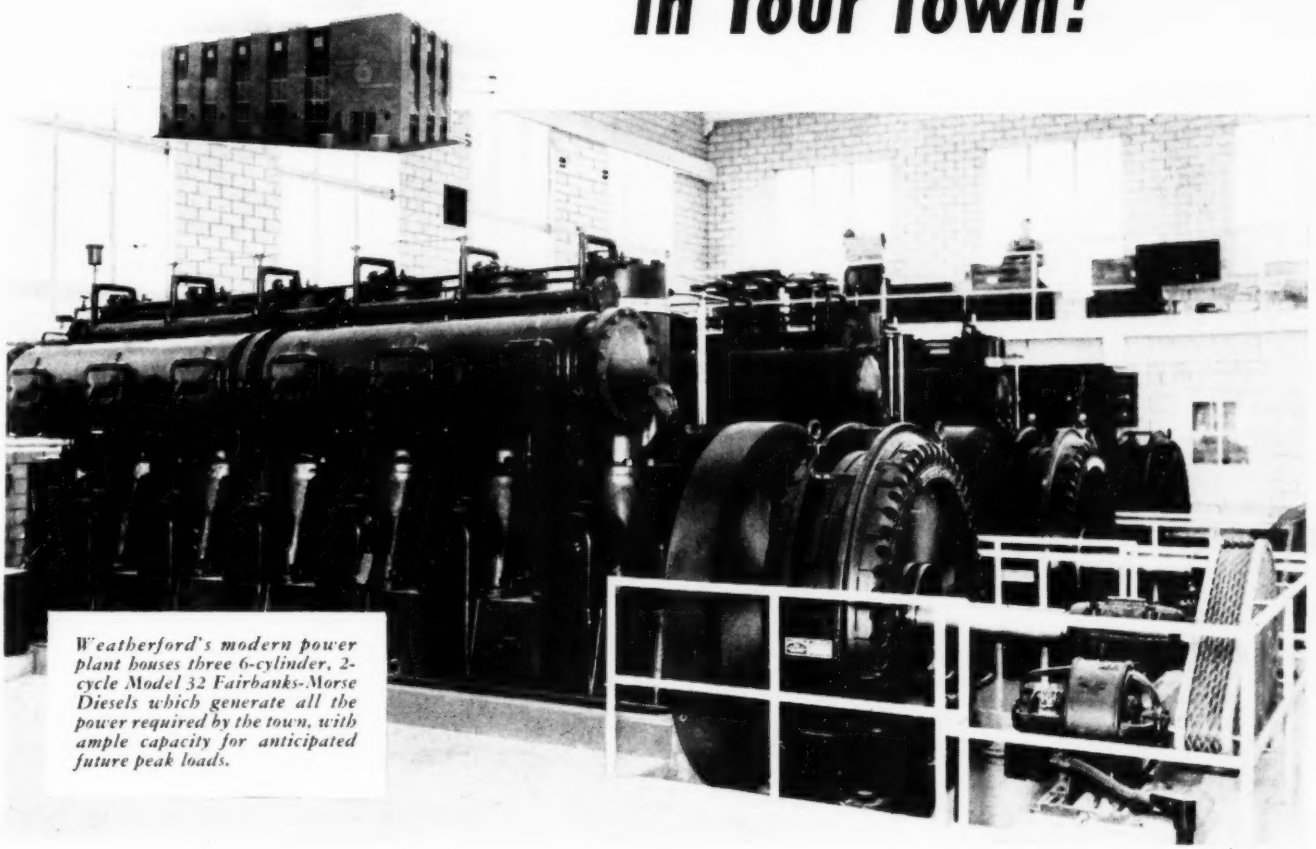

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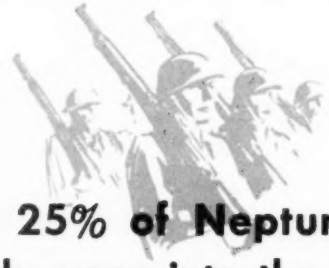

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Vol. LVIII, No. 2 The American City February, 1943

Tested Criteria for "Lowest Responsible Bidder"

Legal Basis on Which Officials of Towns of All Sizes Can Confidently Select the Lowest Responsible Bidder

By NELSON ROSENBAUM
Assistant Corporation Counsel
City of New York, New York

THE basis of making awards to the lowest *responsible* bidder has been adopted with the view to enabling a public body to enter into its contracts with the same efficiency and economy that a prudent businessman does in his everyday business affairs. This beneficial result cannot be obtained when the award must go to the numerically lowest bidder.

In addition to the necessity of advertising for bids, there is implied in the award of public contracts required to be let to the *lowest responsible bidder* that previous to such advertising, definite plans and specifications be adopted in order to enable all bidders to make intelligent bids for the exact work to be done. A common standard is thus obtained by which to measure the respective bids to determine the lowest responsible bidder.

The lowest bidder is not necessarily the lowest responsible bidder. Neither does the ability to furnish a surety bond for the faithful performance of the contract nor the possession of financial resources, together or singly, usually make a bidder responsible within the meaning of that term. This situation should be well understood by awarding officials.

The term "lowest responsible bidder" has a wider meaning than would appear from a first impression. The basic definition has been judicially explained as a bidder "able to respond or to answer in accordance with what is expected or demanded." In using this standard to award public contracts, the following factors generally are considered in selecting the successful bidder:

1. Financial or pecuniary ability to complete the contract
2. Integrity and trustworthiness
3. Skill
4. Judgment
5. Ability to perform faithful and conscientious work
6. Promptness
7. Experience
8. Necessary facilities and equipment for doing the work
9. Efficiency
10. Previous performance of satisfactory work
11. Any other essential factor or factors which may be dependent upon the type and kind of contract to be awarded

After the receipt, opening, and tabulating of bids, the public official charged with the duty of making the award to the lowest responsible bidder must determine two things in order to make a valid award: (1) the responsibility of the bidders, and (2) which of the responsible bidders has submitted the lowest bid. The second step requires the exercise of no discretion, since it is a simple mathematical calculation. But the determination of the responsibility of a bidder does require the use of *judgment and discretion*, which must be exercised fairly and honestly on facts, relating to the responsibility of the bidders, discovered or obtained upon an investigation or "check-up" of the bidders' backgrounds. The facts so discovered or obtained must tend to show that the lowest bidder to whom the award was not made was not a responsible bidder.

In telling how to determine irresponsible as well as responsible bidders, this firmly grounded article is a challenge and answer to those who still assert that most municipal officials are venal. Manufacturers who think this may think twice after reading that "A corporate bidder whose former employee four years previously bribed the officals of a municipality to secure the award of a contract can be rejected 'as an irresponsible bidder'".

The many criteria in this article are completely supported by legal references in the full study published in the November 1942 issue of the Cornell Law Quarterly.

Investigating Responsibility

Awarding officials should always keep in mind that their failure to investigate the responsibility of the bidders before making an award under the standard of lowest responsible bidder vitiates the contract so awarded if it has not been made to the lowest responsible bidder. A contract will not be valid when it is awarded upon factors which do not come within the meaning of lowest responsible bidder. An exaggerated example would be the refusal of an awarding officer to award the contract to the lowest bidder, though responsible, because of a personal dislike of such bidder.

In investigating the factors of responsibility in relation to a bidder, an awarding official consciously performs what every prudent businessman does as a matter of habit in his own com-

mercial dealings. In employing the results of the required investigation, the public official is considering the bidder who is most likely to properly, efficiently, and satisfactorily perform the contract for the lowest price. Invariably the courts do not supervise the action of public officials in using the results of these investigations to direct the award to a particular bidder.

When an awarding official lets a contract to one other than the lowest bidder, it is advisable, in the interest of proper administrative practice, that he record in his office the ultimate facts upon which such action is based. This is for the information of taxpayers and the protection of the awarding official, and to forestall unjust criticism which, in the absence of explanation, might cause the award made to appear to be an unjustified expenditure of public moneys. Some city charters specifically provide for this procedure. Such procedure is found in the New York City Charter, which requires the awarding officer to file in his office and in the offices of the Comptroller and Treasurer of the city a detailed statement of the reasons for not awarding the contract to the lowest bidder.

Some awarding officials fear that in the event they do not award the contract to the lowest *numerical* bidder, even though the standard to be employed is that of lowest *responsible* bidder, they will be subjecting themselves to a suit for personal damages at the hands of the lowest bidder. This fear is definitely unfounded in the law.

To be able to complete or perform any project, financial resources are required. The awarding official may demand of a low bidder a financial statement. Failure to furnish such statement is a basis for considering the recalcitrant bidder not responsible. Unsatisfactory reports concerning a bidder from well-known credit, financial, or business organizations can be the factual foundation for holding that such bidder is not responsible. The fact that the bidder proposes to perform the contract on borrowed capital is indicative of lack of financial ability.

An awarding official is justified in considering a bidder not responsible if he has previously defrauded the public in such contracts. A bidder who has failed to enter into a previous contract awarded to him may be considered not responsible. A bid of a contractor which is unbalanced and suggestive of a fraud upon the municipality can be rejected as that of a bidder who lacks integrity and trustworthiness. A corporate bidder whose former employee four years previously bribed the officials of a municipality to secure the award of a contract to it can be rejected by the standard under consideration, even though it is claimed by the bidder that it has, since the act of bribery, performed only faithful and conscientious work.

Even the employment by a bidder of a superintendent, indicted for failing to pay the required prevailing rates of wages to mechanics employed on his own public contracts, is a basis for considering such bidder lacking in moral worth. A bidder lacking in moral worth who seeks to secure public contracts under the guise of another corporation, partnership, or individual is still not a responsible bidder. Under these circumstances an awarding officer is justified in looking behind the cloak of the "phony" bidder.

Experience

Skill, judgment, and experience are dominant factors relating to responsibility of bidders. A bid of a contractor can be rejected when in the opinion of the awarding official the bidder does not possess the skill, judgment, and experience necessary to perform faithfully and expeditiously the work contemplated. *The rejection of a bidder solely because of the lack of experience will also be upheld.*

Under the standard of lowest responsible bidder some well-meaning persons argue that bidders who are new in their respective fields will not be able to obtain public contracts. This is not exactly correct, though it is not to be expected that the acquisition of essential proficiency should be secured by experimentation at the expense of the public treasury. Whether a bidder, lacking in the above-mentioned qualities, is to receive an award of a contract is always a matter of discretion—business judgment—of the awarding officer based upon the facts before him.

Some illustrations probably will demonstrate the point better than further discussion. A carpentry contract is to be let for a simple guard rail. Three bids are submitted. Bid A, in the sum of $975, is that of a carpenter with ten years' experience and liquid capital of $10,000. Bid B, in the sum of $950, is that of a carpenter with one year's experience, with liquid capital of $1,000 which is sufficient to build the guard rail. Bid C, in the sum of $925, is that of a bricklayer, who never did any carpentry work, with liquid capital of $1,000. Ordinarily, the exercise of good business judgment—discretion—should impel the awarding officer to reject the lowest bid $925 because of this bidder's inexperience, and to accept the bid of the next lowest bidder—bid B—in the sum of $950 because this bidder has sufficient experience, etc., for the type of job to be performed.

On the other hand, if the job calls for the construction of wooden barracks for housing of troops required to be erected within a short time, and the bids were in the same order as in the previous example, but of course increased in amount, the award should not go to "B" or "C," but should be given to "A," if his financial resources are sufficient to carry the job, taking into consideration the fact that partial payments of the contract price are usually made during various stages of the work.

When bids on certain contracts are received from a small group of experienced or otherwise qualified contractors, who do not compete keenly with each other, or who just go through the formality of competing, an awarding officer is justified in accepting the low bid of a person who possesses a lesser amount of experience, skill, and judgment than is usually required. The purpose of this action is to secure more competition for the community's business by making available additional bidders, thereby securing fairer prices of which no citizen can justly complain.

Promptness

Public contracts invariably state a time within which the contractor agrees to complete performance. Timely performance is vital to public bodies, particularly in the case of large improvements financed by funds payable over the contemplated life of the project. Delays in performance of such contracts result in payment of interest charges without the municipality's securing the benefit of the improvement. In the case of toll-paying projects, delays of contractors result in a direct monetary loss which could be used to pay the accruing interest charges. Delays in the performance of public contracts deprive the public of the use of the matter contracted for, whether a bridge, an automobile, or printed forms. It is therefore wise for an awarding official to examine the past record of a low bidder for prompt completion of contracts.

If the amount of the low bid is less than the estimated cost and if the awarding agency believes, because of the fact, that the contract will not be completed as required, the agency is justified in rejecting the bid. A low bidder can be rejected, though he is financially responsible, if he has all the work he can presently handle with his equipment and facilities and if the awarding officer believes that such bidder cannot complete the contract within the stipulated time.

It is well known that union mechanics in the construction field will invariably strike or walk out when non-union workmen are employed on the job, thereby delaying the progress of the project. So, in the construction of a building, if the principal or general contractor is an employer of union mechanics, it is proper for the awarding officer to reject, as not responsible, the low bidder for the plumbing work because he maintains an "open shop." This rule is also applicable to a situation where the principal contractor maintains an open shop and the low bidder for the plumbing is an employer of union mechanics.

Businessmen do not continue to mantain commercial relations with persons or organizations who previously have failed to perform contracts in accord with their intent and requirements. There is no sensible reason to cast aside this viewpoint in awarding public contracts when the lowest bidder, responsible in all other details, has previously performed unsatisfactory work. When the low bidder has a record for unsatisfactory work, the application of the norm of the prudent businessman by an awarding officer in refusing to contract with such a bidder has judicial approval. Especially is a bidder not responsible if, in the previous performance of the same kind of a contract as the one to be awarded, such as paving a street with brick, he installed defective bricks which were never corrected.

The contractor must possess the usual equipment to perform the contract. Otherwise public contracts will be solely in the hands of brokers, which is not a healthy condition. When speed is essential in the performance of a construction contract, the ownership by a bidder of equipment suitable for the performance of the work may be considered in determining responsibility. A public officer is not required to award a contract to a low bidder who lacks the necessary plant and equipment, on the promise that he will secure the tools.

In contracts for the purchase of machinery, such as automobiles, fire engines, and other types of internal combustion engines, the ability of a bidder to furnish necessary repair parts can be considered in determining the question of responsibility. Municipalities should not be expected to spend large sums for the purchase of machinery, which must remain useless because repair parts cannot be readily secured. The issue as to a bidder's ability to make immediate repairs to mechanical equipment can be the determining factor in favor of his responsibility, particularly in the case of fire apparatus. A contract may be awarded to the manufacturer of an engine as the lowest responsible bidder, whose machines have been in actual and satisfactory use and for which servicing and necessary repair parts are readily and promptly available, as compared to a contractor who desires to furnish a machine which has been in use for a comparatively short time.

A contract involving mechanical devices, such as the detention equipment of a prison, may be awarded to a contractor, as the lowest responsible bidder, on account of his equipment's quality and adaptability to the particular requirements of the job.

In the post-war era the use of the criteria under discussion will enable public agencies to render the expanding services required of them with efficiency, economy, and dispatch to the same degree exhibited in the business world. To do this, awarding officials should strive now to understand and apply the enunciated principles of "lowest responsible bidder" with courage and without fear or favor. By doing so they will be in a position to contract for the many public improvements now held back by the needs of war with an experienced judgment and discretion that will be looked upon as a creditable achievement of American democracy.

Even distance may be a factor in determining the responsibility of bidders. When the plant of the low bidder is at such a distance from the offices of the awarding agency that his performance of the contract would cost the public body more than if awarded to the next lowest bidder, the award may properly go to the higher bidder.

The so-called low bidder may appear to be responsible in every detail, yet in fact be the "lowest dishonest bidder" because he does not intend to pay the prevailing scale of wages as required by the contract or law, taxes for unemployment insurance and for social security, and necessary premiums for workmen's compensation insurance. Such a bidder, in avoiding his obligations required under social benefit laws, places himself in an advantageous position. The acceptance of the dishonest contractor's bid places the honest contractor at a disadvantage and finally forces him out of business. It was decided recently that where an awarding officer was of the belief that the lowest bidder, because of the amount of his bid, does not intend to pay the wages prescribed in the contract, such bidder can be rejected as not responsible. Past experiences of municipalities indicate that the acceptance of the dishonest bid is a forerunner to collusive practices with higher and exorbitant prices. The honest bidder, in order to remain in business, enters into conspiracies with the dishonest bidder for dividing among themselves the contracts of the municipality and, as an inducement to continue the conspiracy, charge unreasonably higher prices. Immediate recognition and rejection of dishonest bids is the best prophylactic.

A taxpayer is authorized to test the act of an awarding officer of a municipality by the institution of a taxpayer's action on the theory of preventing waste of public funds. But there is no unanimity as to the right of a taxpayer to have a similar remedy against an awarding officer of a state. Taxpayers have no rights of action to prevent waste of public funds in connection with the award of federal contracts.

Lately there has been a growing trend in the law to grant bidders certain limited rights in connection with the determination of this standard. If an awarding officer determines who is the lowest responsible bidder upon criteria different from those contained in the statutory definition, or the usual meaning of this term, it would seem that the unsuccessful bidder has a standing in court to have relief commanding the awarding officer to make the award not to a particular bidder, but in accordance with the legal standard. This holding may be the opening wedge by which bidders may have tested the formula used by awarding officers to determine the lowest responsible bidder.

Eliminating the Bribe Giver and the Defrauder

Under the standard of "lowest responsible bidder," awarding officials have improved the public service by eliminating from the field of public contracts the bribe-giver and the defrauder. The fear, once expressed, that "practical politics" will be played by public officials, using this standard to award contracts under the guise of exercising their discretion, has not materialized. With the trend in this field in the direction of granting an unsuccessful bidder the right to question the criteria of responsibility used by an awarding officer, this danger cannot readily occur. Neither has the law in this field been static, for the term "lowest responsible bidder" has expanded in accord with the developments in our daily life.

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By JAMES J. CORBALIS, JR.
Sanitary Engineer
Virginia State Health Department

HOW small can a community be and still be able to "afford" a sewage-treatment plant? A good, concise answer to this question would simplify a lot of problems for the sanitary engineer. It, of course, depends on the economic status of the community and the need for the service. Each situation must be studied separately with the judgment resting on its merits. Here is what one small town did when it was faced with the problem of sewage treatment.

Herndon, Va., normally claims a population of 1,046. Lying some 20 miles from Washington, D. C., it has not been able to escape the fluxations and turbulence of the nation's capital. However, back in 1935 Herndon was essentially a self-contained little community with characteristics typical of thousands of others throughout the country.

At that time it was realized that sanitary conditions were far from perfect. Septic-tank systems installed for individual homes would not function satisfactorily because of the existence of rock within 18 inches of the ground surface. Knowing that they could take advantage of PWA aid, members of the town council retained the Chester Engineers of Pittsburgh, Pa., to study the possibilities and to prepare plans and specifications. Subsequently the proposition was put to a vote in accordance with the general legal procedure and, surprisingly, it was defeated by the narrow margin of nine votes.

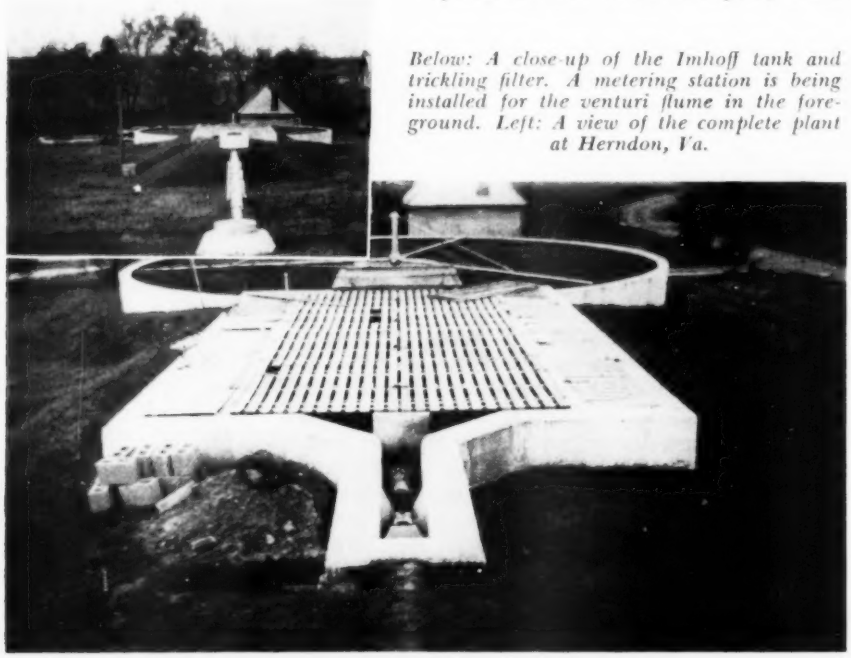
Actually this setback proved to be something of a boon. People interested in the project realized that if it were to succeed they would have to study the project seriously and sell its advantages to the entire community. As a result of their consideration, the town decided to purchase the water company then serving a small portion of the area, enlarge its services, and combine the two for presentation at the same election.

This revised project, when put to a vote in October 1936, received a thumping majority and, consequently, the project went forward in good shape.

The construction involved 27,675 feet of 6-, 8-, 10-, and 12-inch concrete pipe, a complete treatment plant consisting of a bar screen, venturi flume, Imhoff tank, trickling filter with an American Well Works rotary distributor, secondary settling tank, chlorine contact tank, with a W&T direct gas feed chlorinator mounted close to a Fairbanks weighing platform for the cylinder of gas. An administration building houses the Weiman single-action sludge pump, the chlorinator, laboratory, and materials to be stored. A Brown recording flow-meter makes a permanent, 24-hour record of varying quantities that the plant must handle.

An interesting feature was the inclusion of "house lead-ins" built at the same time that the rest of the lines were installed. These were sold to the property owners at a nominal cost, payable in installments, and represented a real inducement for early connection. Furthermore they eliminated the need for future construction in the rock by the owners, and also made unnecessary many future crossings of the state highway.

The total cost of the project was approximately $90,000, or $90 per capita—consistent with the trend for the type of facilities offered.



Below: A close-up of the Imhoff tank and trickling filter. A metering station is being installed for the venturi flume in the foreground. Left: A view of the complete plant at Herndon, Va.

Financing and Extensions

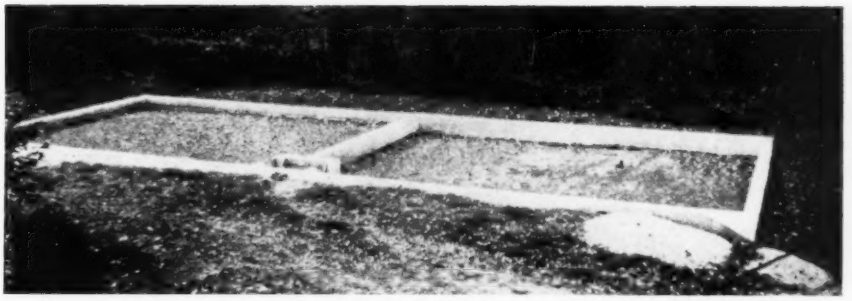
The financing of this project by the use of service charges is extremely interesting since the actual costs of maintenance and operation were underestimated. Because of this underestimation, the plant just about keeps "out of the red," chiefly because a greater number of users took advantage of the service than had been anticipated. The charges are on a fixed basis of $24 per year for a single-family house, and increase accordingly to $45 per year for business houses and larger types of homes and apartments. Collections have been very good: out of six years of operation, only one-half of one per cent of the accounts receivable remain unpaid.

Arrangements for extensions show thought that is worthy of a big city department. The administration has adopted the policy that extensions shall be constructed either if the sanitary conditions require it or if the area served will show an assured gross annual return of 15 per cent of the expenditure. The first condition may be made financially possible since the town has the right to assess the expenditure against the property should the owner fail to agree voluntarily to the extension. Connections are made by the property owner at his expense or by the town and charged against the property.

Operating Problems

The operation of this little plant has not been entirely smooth. The major problem that has confronted it, one which has not yet been solved, has been that of infiltration —and Herndon, Va., really has infiltration! The average flow reaching the plant averages about 40,000 gallons per day; after a storm it reaches as high as 90 to 100 thousand gallons. Inspections have disclosed some of the trouble, but the major difficulty remains undiscovered. Flash floods have caused trouble. Last fall one flood covered the floor of the administration building to a depth of 32 inches.

Equipment difficulties have been small. The rocker arm on the sludge pump caused some difficulties which were remedied by installing an air chamber on the discharge line to absorb the shock of entrained air. The flow meter failed shortly after its installation, but this is being remedied by constructing a metering station, adjoining the venturi flume, of a design that will allow ease of cleaning.



These two 20- x 25-foot sludge drying beds amply meet the requirements for this small plant.

Results

The proof of the plant's quality, of course, is in its results. A treatment plant, unfortunately, is not like a water or electric utility where any trouble is reported immediately to the operators by the consumers. A sewage-treatment plant may be mismanaged for a long time before any evidence of this misoperation comes to the surface, and then this evidence many times is presented in the form of lawsuits and injunctions.

During the early part of this year, the State Health Department ran a series of tests on each unit of the treatment process to determine the degree of treatment afforded and the efficiencies obtained. The results are tabulated below and illustrate the effectiveness of the treatment:

	5-Day BOD	Per Cent Removed	Bacteria Total Count	Per Cent Removed
April 13				
Influent	111		38,000	
Effluent	7.6	93.4	90	99.2
April 22				
Influent	105.5		140,000	
Effluent	13.3	87.0	600	99.4
April 27				
Influent	111.0		135,000	
Effluent	2.1	98.1	180	99.7
May 9				
Influent	411.8		1,300,000	
Effluent	1.4	99.7	100	99.9
May 11				
Influent	220.5		1,000,000	
Effluent	4.0	98.2	299	99.8

	BOD Removal	Reduction in Total Count
Minimum	87.0%	99.2%
Average	95.3%	99.6%
Maximum	99.7%	99.9%

These figures show clearly enough that the effluent is not causing any undesirable pollution to the receiving stream. It may be of interest that the largest reduction in BOD was in the secondary settling tank. In almost every instance it was greater than 75 per cent between the influent and effluent of that unit.

The Plant's Future

The population of Herndon has remained rather static during the past decade and probably will return to that same static stage at the end of hostilities. The plant is designed for a population of 1,000 and is serving only 600. Further town ordinances can either encourage or compel new connections, with the result that at least $1,200 can be added to the operating revenue. This should not only ease financing but aid in operation.

Aside from the general value of the plant, from the viewpoint of health protection and nuisance abatement, it has provided other real advantages. Property values have increased. The plant has been the means of obtaining natural gas distribution, for without the water and sewerage maps showing the location of the streets, houses, and existing utilities, the private corporation was reluctant to service the area.

Personnel

The plant has had two operators since its construction. The first, Ben McCarthy, served until June of last year when Paul Mullen took over. S. F. Hutchison is Manager of Public Works. W. S. Blanchard formerly held this position and guided the plant through its design, construction and early operation.

The City's Place in Post-War Highway Planning

Concrete Advice on What Cities Should Do to Help Provide the Economic "Backlog" Against Post-War Recession

By THOMAS H. MACDONALD
Commissioner
Public Roads Administration

PLANNING for after-the-war highway construction is now in progress in California, Massachusetts, Mississippi, Missouri, New Jersey, New York, Oregon, and the District of Columbia under provisions of the Defense Highway Act of 1941. All states are to be included in the planning program, and additional projects are under consideration. This work includes surveys, preparation of plans, specifications, and all other incidentals short of actual letting of the contract.

Federal-aid funds for such work, totaling $10,000,000, have been apportioned to the 48 states, the District of Columbia, the Territory of Hawaii, and the Island of Puerto Rico under the regular federal-aid apportionment formula established by law.

Under the terms of the 1941 legislation and by express understanding with the states, none of the highway projects for which the advance planning is under way will be constructed until after the conclusion of the war. But the plans will be ready in the final blueprint stage in such detail and completeness as to permit the undertaking of construction without delay when the opportune time arrives.

Service for Urban and Metropolitan Areas

In the approval of projects selected by the states, the Public Roads Administration is giving preference to those that will result in wholly adequate traffic facilities in urban or metropolitan areas, including city entrance routes, circumferential and distribution routes, and terminal and publicly owned off-street parking facilities.

In the language of the 1941 Act, "the commissioner of public roads is authorized to make . . . advance engineering surveys and plans for future development of the strategic network of highways and bypasses around and extensions into and through municipalities and metropolitan areas."

The act states further that "by agreement with the state highway department of any state, any project carried out in such state under the provisions of this section [on surveys and plans] may be carried out through or in cooperation with the highway department in such state." Since it has always been the policy of the Public Roads Administration to work with and through the state highway departments, the advance planning activities are being carried out in the manner suggested by the law.

How Cities Can Cooperate

Cities interested in taking advantage of this specific planning of traffic facilities should, therefore, apply to their respective state highway departments. Since by law the federal contribution to advance planning of post-war construction must be matched by state funds before it becomes expendable, cities may find it advantageous to indicate their willingness to provide at least a part of the state's contribution for the particular projects they propose.

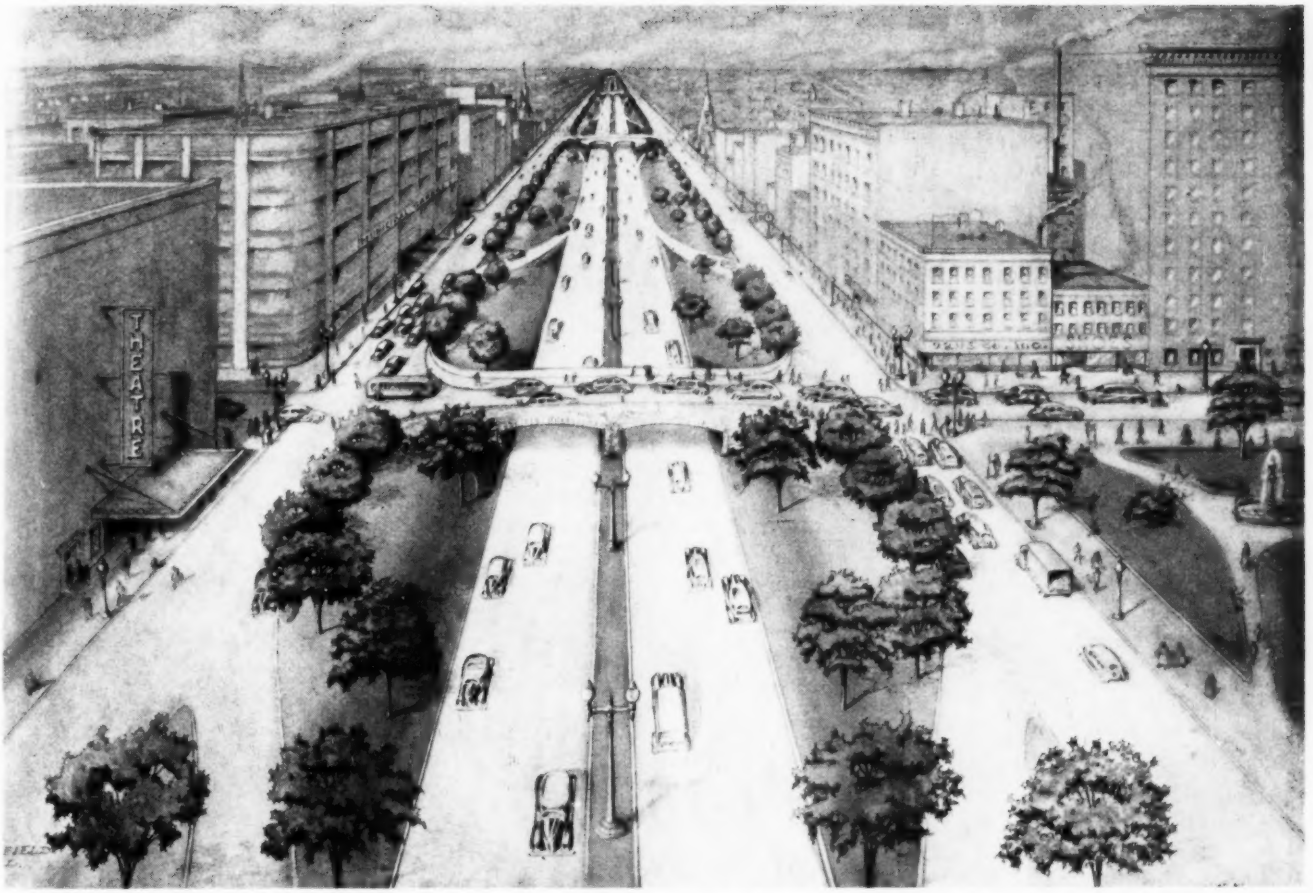
Cities may also find it productive to offer the services of their engineering staffs in planning the desired facilities. The technical personnel of state highway departments has been greatly depleted since the war began. Most departments, therefore, would probably be favorably influenced by the offer of engineering as well as financial cooperation in projects proposed by the cities.

In recommending planning projects, city officials need to keep in mind that no proposal will be approved in which the planning operation involves only such studies, processes, decisions, and volume of detail as are required for ordinary highway construction projects. In this advance-planning activity, it is assumed that normal improvements will be undertaken again after the war in the regular, continuing federal-aid program. Advance planning under the 1941 legislation applies only to projects for out-of-the-ordinary improvements of such magnitude as to justify and require considerable time and study.

Federal Participation

The federal money may be used for comparing alternate locations for major highway facilities. The final result of this use, however, should be the preparation of detailed plans for actual construction of the facilities. The consideration of alternate locations is especially important in cities because of the high cost of rights-of-way.

From city, state, and national standpoints, advance planning of projects for post-war construction is important. It will make available a reserve of well-planned and essential public works projects which can be put under construction to provide immediate and useful employment during the period when the armed forces are demobilizing,



How a well-designed highway should proceed through a large city when such routings are required. The Davison Avenue Limited Traffic Way located in Detroit (See p. 62, Dec., 1942 issue) is an example of this modern construction.

DRAWINGS BY PUBLIC ROADS ADMINISTRATION

Engineers prefer to design a belt line around a city and connect the main routes to it. Here is a design suggested by the the Public Roads Administration.

war plants closing down, and industry converting from wartime to peacetime production.

The $10,000,000 federal appropriation for advance planning, plus an equal amount of matching state money, provides a fund sizable enough to project a $500,000,000 post-war highway building program. This is equivalent to about two years of pre-war federal-aid highway construction. The planning for this pre-war program was a continuous process—in general, while one road was being built, another was being planned. Few people not engaged in construction work realize the amount of time it would take to prepare plans for extensive post-war highway improvements if the planning had to start from scratch at the end of the war.

Until recently, the planning of post-war public works projects has been a subject much like the weather — everybody talked about it, but nobody did anything about it. But now actual planning has begun. The Public Roads Administration has already approved planning projects in or near more than 25 cities, including Boston, New York, Kansas City, St. Louis, and San Francisco.

Important City Projects

The following are examples of some of these big-city planning projects:

Boston—Development of a new route 24 miles in length between Wakefield to the north and Wellesley to the west of Boston. This is a continuation of a belt-line improvement already under way.

New York City—A 14-mile extension of the Hutchinson River Parkway and Eastern Boulevard in the Bronx to a junction with U. S. 1 and the Merritt Parkway at the New York-Connecticut line. A new 36-mile limited-access route beginning at the New Jersey end of the George Washington Bridge and extending southwest via the New Jersey cities of Bayonne, Elizabeth, Linden, and Woodbridge to a point on the Raritan River about 3 miles east of New Brunswick, N. J.

Kansas City—Development of one north-south and two east-west routes through Kansas City, Mo., connecting principal routes entering the city with the downtown section. Total length, 21.5 miles.

St. Louis—More than 50 miles of construction, including a section of the Express Highway and Chouteau Avenue, to complete an east-west route through the city to a point on 7th Street near the municipal bridge over the Missouri River; selection and planning of the best route from the west into and through St. Louis to connect with Clayton Road, the express highway leading to the preceding project; development of new routes passing both north and south of the city.

The Congressional provision for advance planning will enable cities and states to begin work that will form part of a $500,000,000 post-war highway program, sufficient for about two years of normal road construction. It is a foresighted wartime provision—one which will cost nothing in vital war materials or labor but which will be highly productive of useful employment and urgent public works in the post-war period.

San Francisco—Completion of Bayshore Freeway from San Francisco-Oakland Bay Bridge on the west side of San Francisco Bay via San Mateo, Redwood City, Moffet Field, and San Jose to connect with present route southeast of San Jose. Plans for 9 miles of this route are already completed by the state; the new work covers 42 miles. A limited-access highway from a point on High Street in Oakland along the east shore of San Francisco Bay to connect with the proposed Bayshore Freeway north of San Jose. This new route, 33 miles long, will be known as the Eastshore Freeway and will bypass congested urban and industrial areas.

Inter-Regional Highways

While considerable encouragement will be given to the selection of ambitious urban projects, rural projects also will be approved, particularly those that will result in complete plans for sections of road likely to be included in a system of interregional highways to be eventually designated. A striking example of such approval is already available in New York state.

The world's longest 4-lane, divided, express highway is now being planned by the Division of Highways of the New York Department of Public Works. Throughout its 468 miles it will sweep under or over all other intersecting roads and railroads and will skirt all cities. Motorists will be permitted to enter and leave the new road only at selected points. Right-of-way will have a minimum width of 200 feet.

Beginning at the New Jersey line near Suffern, the highway will parallel the west side of the Hudson River to a point near Albany, then veer northwestward past Schenectady and westward by Utica, Syracuse, and Rochester, finally, at Buffalo, swinging down along the shore of Lake Erie to the Pennsylvania line.

One of the most essential elements in the construction of an adequate interregional system will be the cutting of express highways directly into and through the centers of our big cities. This is recognized in the advance planning in progress for several cities. The need for these fast through-ways is indicated by the fact that in normal times about 90 per cent of the traffic on main highways near the entrances to large cities is bound to or from points within the cities and cannot be bypassed around them.

Belt-Line Roads

Other important new facilities required in an interregional system are belt-line distribution roads around the larger cities and alternate routes around many of the smaller cities and towns. The belt-line distribution roads will serve to bypass some through traffic. Their main purpose, however, is to distribute incoming and outgoing vehicles to points around the circumference of the city nearest their destinations.

Alternate routes for smaller cities serve a somewhat different purpose. To determine whether a route would be useful for a particular city, it is necessary to consider the volume of through traffic and the size of the city. Where a small city lies between nearby large cities, a route skirting the smaller city may be a great convenience to the through traffic, and may also reduce the traffic volume on the main city streets thereby relieving a troublesome condition.

Demolishing Blitzed Buildings

How Britain's Royal Engineers Raze Dangerously Damaged Buildings

BRITISH OFFICIAL PHOTOGRAPH

Demolition of dangerous structures in London. This picture shows, incidentally, the peril survived by St. Paul's Cathedral.

AFTER an air raid many buildings are damaged so badly, especially those that have been burned, that demolition becomes essential.

Certain blocked routes must be reopened immediately to provide for essential traffic and transportation. Fire breaks must be created in districts where buildings are still in flames—particularly difficult when fire brigades optimistically delay in asking for demolition until too late for methodical attack. Demolition is the type of work that Britain's Royal Engineers perform effectively with explosives.

Considerations

The intelligent use of these explosives should enable the engineer to raze a dangerous building quickly without damage to adjacent buildings or blocking key streets and passageways. Each problem must be studied from the following viewpoints:

Types of buildings: Most are large warehouses or office buildings. In almost all cases they are only shells with the center either gutted by fire or destroyed by bombs. Steel-framed buildings, obviously not constructed in this manner, often lead to difficulties.

Placing of charges: This is complicated by the following factors:

(a) access barred to the building either by fires burning inside or by the inaccessibility of the windows;

(b) the state of the building considered too unstable for the use of compressor tools;

(c) as small a charge of explosive as possible to be used, in order to do little damage to surrounding buildings;

(d) as little debris as possible to be thrown up, to reduce the work of clearing to a miniminum. Buildings have, therefore, to be collapsed into their own area as far as possible.

Methods

Borehole charges in the main pillars of the structures. This method is used wherever possible. It cannot be used when the building is in an unsafe condition or when fires are burning strongly inside and show signs of spreading before preparations are complete.

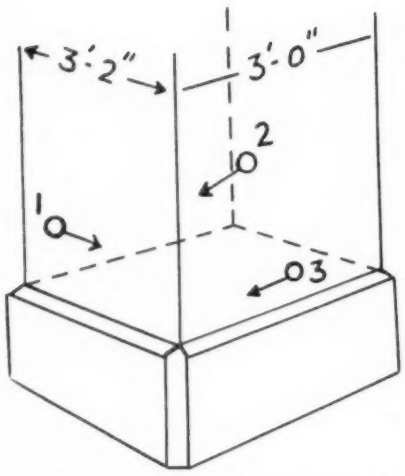
Cutting charges placed in the most suitable position available. These might be the pillars, by the windows and doors, or in any cracks already open in the building.

Concussion charges. These are used occasionally but are useless on steel-framed buildings.

The following are examples of actual demolitions and cover the main problems that were encountered.

Borehole Method

Large warehouse completely gutted. There were seven pillars on the front, with a 2-foot thickness of masonry and 14 inches of brick. The walls were 14-inch brick and 9-inch stone facing. Walls were to be brought down without blocking the street in front of the building.



How the borehole method works. In this case, each hole was 24 inches deep.

Three 24-inch boreholes were made in each pier, and 12 ounces of gelignite placed in each hole. Commercial detonators were used —it was found unreliable to fire as many as 22 together, so the firing was done in two stages. The demolition was completely successful.

Boreholes and Cutting Charges

Two buildings burned out. The walls were of good brick in cement mortar, but they had been shaken considerably by a heavy bomb. The communicating passage was a steel frame attached between the two walls. It was impossible to enter the buildings, owing to fire in the cellar.

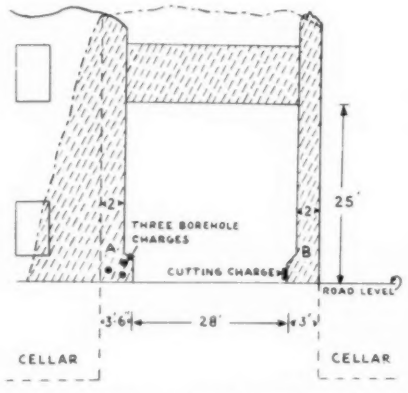
The corner, the connecting passage, and the opposite wall were unsafe. They were to be demolished in order to make safe for traffic the street running along the line of "road level." Also the side street running under the connecting passage was to be kept as free from debris as possible.

The corner was to be demolished by three small borehole charges placed at the foot of the pillar. Bricks were knocked out, the chambers filled and plugged up with wet clay. Also, 25 feet of the wall was to be demolished by a cutting charge. Since the inside was inaccessible because a fire still burned in the cellar and the wall was badly shaken, the engineers realized that the charges did not have to be powerful. The charges for both corner and wall were connected in series, and fired electrically. Thirty pounds of gun cotton and 14 pounds of ammonal were used.

Undisclosed Steel Framing

A completely gutted building. The remaining shell was apparently quite stable except for a heavy masonry cornice considered unsafe. It was necessary to bring down the corner and make the road junction safe for traffic.

It was not realized that there was girder reinforcement inside the masonry of the walls, and the engineers decided to demolish the building by cutting charges consisting of 5 pounds of gun cotton over the lintel, and 4 pounds tamped into a window. This failed to demolish the building, but succeeded in shaking the top. A crack opened in the wall, and a 9- x 5-inch I-section steel joist was uncovered at the lintel.



Boreholes and cutting charges were both used to demolish this structure. At the left are three boreholes indicated, while the cutting charges are shown at the right.

The building was then attacked by placing 4 pounds in the crack opened at the first attempt and 5 pounds well tamped at the foot of the arch. The second charges totally demolished the building, which fell on to its own base, causing no obstruction to the corner.

Concussion Charge

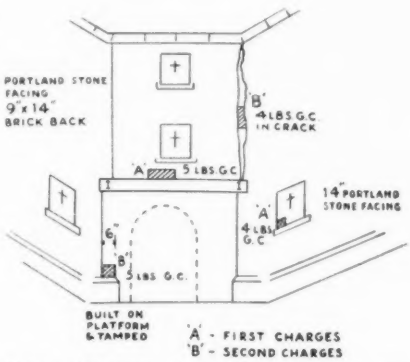
Warehouse, 6 stories, with the roof and top 4 stories on fire. The walls had 18-inch brickwork with 9-inch masonry facing. Demolition was required to prevent the fire already burning in the building and behind it from spreading to the intact buildings across the street.

It was originally intended to place borehole charges along the end and side walls of the warehouse, but streets were so blocked with debris and fire hoses that compressors could not arrive in time.

It was decided to place concussion charges near the two corners of the building in the basement. Gun cotton charges were fixed to cut the iron grill over the basement window, but before these were fired the roof and two upper stories collapsed, and this method had to be abandoned. Access was possible to the hall, but the staircase was on fire, and there was not much time to spare. Furthermore, a varying wind made approach from more than one direction at a time extremely difficult. A crate of ammonal of 63 pounds was placed in the entrance hall and fired.

A second 63-pound crate of ammonal was placed against the remaining front corner and fired. There was no time to tamp it.

A 25-foot run of the front wall and 15 feet of the side wall on the southeast corner collapsed. A 25-foot run of the front wall, and a 15-foot run of the side wall on the southwest corner collapsed together with the whole of the central portion of the building. Ten feet of the center of the front wall remained standing but collapsed shortly afterwards. The fire was dropped to ground level by the demolition and was soon under control. For demolition 126 pounds of ammonal and 8 pounds of gun cotton were used.



This illustrates the difficulties that are encountered when a building contains undisclosed steel framing. The first charges merely shook the building and disclosed the existence of the steel. The second charge cut the framing and razed the building.

Abstracted by permission from the *Journal of the British Royal Engineers.*

Rising Hydro Load Calls for Diesel Aid

Diesel and Water Power Make an Efficient Team at Black River Falls, Wis.

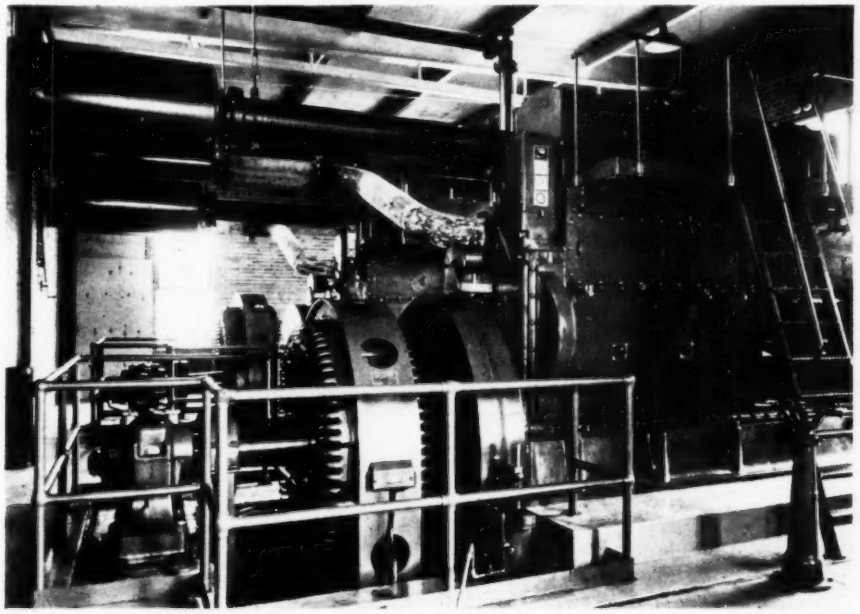
By William H. Gottlieb

WITH many Midwest utilities carrying an ever-increasing war load, it has remained for municipal diesel plants to preserve and protect civilian services in the small towns and rural areas. Today, at Black River Falls, Wis., a new two-engine diesel plant means the difference between the free expanding use of electricity to which Americans are accustomed and a definite limitation of consumption of electric power.

Since 1905, the water of the Black River has been the major power supplier of this town of 2,600 population, but long ago the demand outstripped the capacity of the hydro plant. For years the deficit has been made up with power purchased from a private utility. Growing demands for power to run important industrial establishments forced the utility to limit the amount of power available to Black River Falls and, to safeguard its citizens, town officials put into operation in April 1941, two Worthington diesels with a combined capacity of 1,250-hp.

Earnings

In the first full year of diesel security, Black River Falls saved $6,517.38 on the cost of purchased power, despite the fact that rainfall was phenomenally heavy and the diesels were called on to produce only 857,550 kwhr of a total production of 3,627,590. Normally, the diesels are expected to carry half the annual demand. Plant operators here figure that the 600-kw hydro plant will carry the major part of the load for six months and the diesels will shoulder the load for the other six. Throughout the year, however, diesels will be required to help meet the peak demands.



Two Worthington diesels totaling 1,250 hp parallel the existing hydro plant. They power G-E generators with capacities of 865 kw.

The Viking alarm panel also holds an Alnor pyrometer, fuel tank liquidometer, and motor controls. One of the hydraulic turbines may be seen in the background.

The city purchased power at 1.76 cents per kwhr. Diesel expenditures, including fuel, lube, maintenance, labor, supplies, interest, taxes, and depreciation, are just 1 cent per kwhr. In a normal production year, this will mean a saving of more than $13,500. It should be noted that Black River Falls includes a substantial local tax in calculating power costs and, in addition, collects 6 per cent on the city's investment in power equipment. In 1941, the electric department paid to the general fund $7,411.87 in taxes and $11,300 as interest on the investment. Besides all this, the plant was able to invest $30,000 in war savings bonds and $42,000 in local school bonds.

Rates

Mayor Ralph Lund and the Utilities Commission (Enoch Locken, A. H. Trask, and August Johnson) have never lost sight of the fact that the first job of a municipal power plant is to provide abundant power at low rates. The urban residential rate, under which the bulk of plant's output is sold, is as follows:

Fixed Charge	50 cents
First 40 kwhr per month	3 cents per kwhr
Next 160 kwhr	2 cents per kwhr
Over 200 kwhr	1.5 cents per kwhr

With rates such as these, it is no wonder that consumption is climbing toward 4,000,000 kwhrs. Hydro and diesel economy is such that the city can make large profits despite the low rates, and profits mean pub-

lic improvements and lower taxes.

The first year of diesel operation was hardly a fair test of the engines' performance since production was below normal and the average load was below 45 per cent of capacity. Yet, in spite of the unfavorable factors, the diesels turned out 12.15 kwhrs per gallon of fuel consumed. Some months the engines were run at extremely light load just to ease the hydro plant over the peaks, but when a good load was put upon the diesels, they returned nearly 13 kwhrs per gallon. One month the return was actually above 13.5. Throughout the year the engines were ready for service whenever called upon. There were no breakdowns and no repairs to introduce unexpected costs.

Engine Design

The two diesels vary in size, providing flexibility in handling the load, but both are of the same design and have the same size of cylinders so that virtually all parts are interchangeable. The larger unit is a 6-cylinder, 16 x 20-inch, Type EE, four-cycle, mechanical-injection, Worthington diesel rated at 750 hp at 327 rpm. It drives directly a 651-kva, 521-kw, 3-phase 60-cycle, 2,400-volt, General Electric generator with a 15-kw chain-driven exciter. The second unit has four cylinders developing a rated 500 hp at 327 rpm. It drives a 430-kva, 344-kw, General Electric generator with a 10-kw chain-driven exciter.

Another service performed by Black River is provision of raw water for the diesel cooling system. River water flows by gravity through a 16-inch valve to a pair of Lanimus heat exchangers, and then back to the river below the dam. In an emergency, water can be drawn from a basin in the river and supplied to the exchangers by a motor-driven centrifugal pump. Only soft water enters the closed cooling circuit, with a pair of Worthington centrifugal pumps circulating the water through the heat exchangers and engine jackets. For make-up, city water is treated by a Superior zeolite softener.

The cylinders are supplied with lube oil by Manzel force-feed lubricators. The rest of the engine is lubricated by a pressure circulating system, in which oil is sent to the bearings by a crankshaft-driven pump. Included in this circuit are a Lanimus oil cooler and a Cuno duplex filter. A Hilliard activated clay purifier takes oil from the crankcase sump, removes impurities, and returns it to the crankcase.

The plant has ample fuel storage capacity, a matter of increasing importance today. There are two 12,000-gallon tanks above ground just outside the plant, to which fuel is brought by truck and unloaded by a motor-driven gear pump. The railroad is across the river and an 18,000-gallon tank has been placed near the tracks in such a manner that fuel can be unloaded from tank cars by gravity. From the storage tank, fuel is pumped through individual Worthington-Gamon meters to two 500-gallon elevated day tanks inside the engine room by a motor-driven transfer pump. The fuel flows by gravity through Cuno filters to the engines. Fuel injection is accomplished by an individual Bosch pump and a differential spray nozzle for each cylinder. On each engine there is a relay-type Woodward governor to regulate injection to meet load conditions.

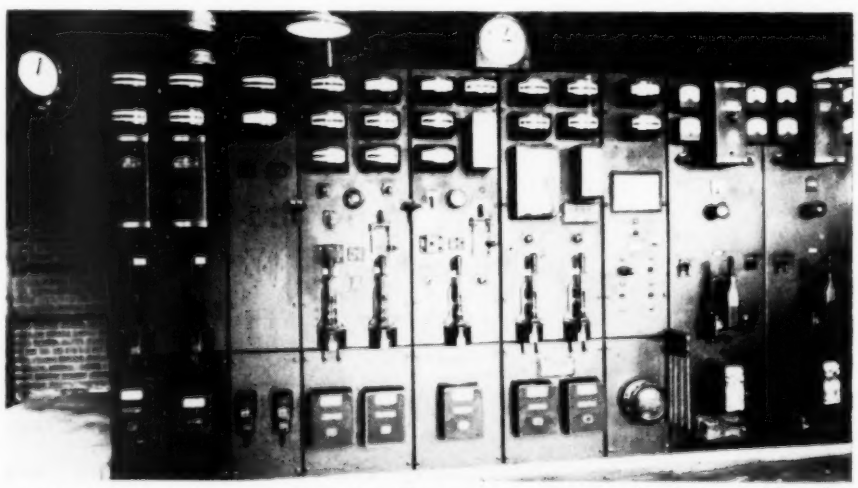
Silencers

Since the plant is just a few yards off the main business street of the town and directly across from a municipal park and pool, special care was taken to silence both intake and exhaust. Intake air is drawn from outside the plant through multi-unit, impingement-type filters set in the wall and then through horizontal snubbers to the intake header. Exhaust gases pass directly through horizontal pipes to vertical Burgess snubbers outside the building.

Alarm Panel

A compact Viking alarm panel facilitates the operator's work. Included on the panel are pressure gauges, a multi-point Alnor exhaust pyrometer, Liquidometer meters for the fuel tanks and lube supply tank, and motor controls for the three water pumps and the fuel and lube transfer pumps. There are alarms on lube pressure, water pressure, water temperature, and overspeed. Starting air for the engines can be provided by either of two V-type Worthington compressors, one belted to a motor, the other to a gasoline engine. Though the compressors are in the basement, the motor-driven unit can be controlled from the operating floor. The eight-panel switchboard, which handles both the diesel and hydro plants which are in the same building, can be supervised by a single operator. On the board are four voltage regulators, a synchronizer, nine totalizing kilowatt-hour meters, a recording volt meter, a recording kilowatt demand meter, and other instruments.

Harry Boyer, Superintendent of Municipal Light and Power, has charge of the operation of this diesel and water power team. He is supported in its management by Mayor Ralph Lund and his council.



Both the diesel plant and the hydro plant are controlled by the G-E switchboard. There are four voltage regulators for each of the generators.

They Plan a New London

The War Has Bombed the Need for City Planning into the Consciousness of the British Public

By L. A. G. Strong*

ON a day in December 1940, when the smoke and dust of the night's air raid had died down, Londoners saw something they had never seen before. By destroying several narrow streets and a huddle of warehouses around St. Paul's, Hitler had presented them with a sight of their great cathedral in something like the space and splendour for which its architect designed it.

As the space was still further cleared, by the pulling down of tottering walls and the carting away of rubble, the wonder grew. The Luftwaffe had accomplished in a night what years of education and propaganda had failed to do. It had made the Londoner conscious of his city's architecture. It had given, for the first time, a meaning to the words "town planning." And not only for the Londoner.

When and How to Rebuild

Wherever destruction fell and the question of rebuilding inevitably arose, people began to ask themselves not only when they should rebuild, but how. Should the old be put back, as nearly as possible, or should there be an improvement? And, if so, what *was* an improvement?

There followed much scratching of heads, for English people have not been accustomed to thinking in terms of civic architecture. But the interest, so violently aroused, has persisted. In a score of towns people are arguing and planning for the great rebuilding.

How widespread is the interest has been proved by the exhibition of designs and suggestions for the restoration of London held at the Royal Academy. I looked in at this early one afternoon, expecting to find a few earnest students gazing silently in corners. Instead I was met with a babble of tongues, and found the large room so packed that it was some time before I could get near any of the exhibits.

Five Main Objects

One huge frame on a table in the middle of the room seemed to be the greatest attraction. I took my turn at it and found it to be a large-scale map of London, replica of the even larger map that covered one wall. No degree of speculation could distract the Londoner from the joy of locating his street, and, marvel of marvels, his house. I plead guilty myself to looking for the Kensington house where we lived for ten years. Yes, there it was, a diminutive oblong in its terrace of diminutive oblongs. I looked up, caught the answering gleam in the eyes of others who had just found their homes, and turned happily to the real business of the day.

I know nothing of architecture in the technical sense but, as far as a layman could see, those artists responsible for the designs had five main objects in view: 1. To secure for each of the city's noblest building a vista which would enable it to be seen in its true proportions. 2. To make each group of buildings a harmonious unit with reference to its geographical position, that is, with reference to a hill, a piece of open ground, a bend of the river, etc. 3. To give ready access to individual buildings or groups of buildings and provide for the flow of an increased stream of traffic. 4. To restore London's splendid waterway, the Thames, to its pride of place in the general design of the city. 5. To provide the city with more numerous and better distributed parks and open spaces.

The designs which commanded the most attention were the various suggestions for the area around St. Paul's and for the Embankment. The crowd examining them was as varied as could be imagined. It numbered men and women of all ages and of almost every type. The young predominated, as was natural. A knot of them, students perhaps, with a boy or girl or two in uniform, argued hotly over a design for Charing Cross Road, while a middle-aged civil servant and two women listened with amused interest. The civil servant's lips moved more than once. He would have liked to join in, but the group was conscious only of one another and of their argument.

Some hospital nurses had their heads close together over one plan. I could not see what it was, but more than one London hospital has not been too happily situated. An old chap peering wistfully in a corner—a clerk, if ever there was one—probably was looking to see what was going to happen to Mark Lane or Queen Victoria Street. And all the time the babble of voices went on, in every tone and accent, and the heat grew in the crowded room, and more and more arrivals came in at the door.

Plans for Opera

The voices were not all English, either. Two young Polish pilots had come in with a W.A.A.F. girl. They were exclaiming delightedly over a scheme to shift Covent Garden Market and make the district a worthy center for opera and music.

"Splendid," cried the taller of the pilots. Now at last England was going to finance opera and drama on a proper scale. It was

* Distinguished English author whose novels include *The Brothers, The Last Enemy* and *The Swift Shadow*.—Reprinted from *Britain* for January 1943.

high time. Why, when he was traveling in Russia, in even a tiny little town of twenty thousand inhabitants, there was a fine opera—a municipal opera. Did the girl understand? Paid for out of public funds—and good, really good. And now, at last, here in London. . . .

The girl looked dubious. It *might* be, she said. "Might be?" exclaimed the Pole. "It *must* be." This design here, was it not a proof? Did not an artist of high standing make it, an official?

I left them, edged past a group of Fighting French, and came to where a couple of Tommies stared at a design for another part of London, a part to which the inhabitants of Kensington and the visitors to the opera at Covent Garden do not go, a part where the planner can start from zero, for there is next to nothing left standing. The Tommies stared and said little, their attitudes speaking a quiet pleasure.

When I saw what they were looking at, I understood why. Till now, the West and South of London, the more favored districts, have had the open spaces and parks. In the new city there are to be parks in every district.

The ideals of democracy for which we are fighting have taken a firm hold and are to be embodied in the London of the future. It must be our charge to see that London does not remain a roomful of drawings, but is realized in steel and stone, a city of strength and grace and open spaces—open to all.

Tax Reduction versus Reserves

SHOULD cities build up reserve funds for use after the war in constructing public works, or should taxes be reduced?

This question, previously discussed in THE AMERICAN CITY and by various state leagues of municipalities, is again brought to the fore by an editorial in the December 1942 issue of *Public Management*. That magazine concludes that:

There is no blanket advice that would apply to all cities alike. Some cities in defense areas have had to increase taxes and levy special charges, while other cities faced with a "priorities depression" have to reduce taxes. However, there are some general considerations that may act as a guide in developing a sound wartime financial policy.

Existing local tax rates should be maintained because most citizens have higher incomes and therefore have "ability to pay." Maintaining existing rates will help in a small way to avoid inflation.

At the same time, municipalities should spend no more than is necessary to maintain essential services, and the savings should be applied to the payment of outstanding bills, to the reduction of floating debt, and to retirement and open-market purchase of outstanding bonds.

Operating efficiency should be improved by adopting labor-saving and cost-reducing methods.

Cities should conform strictly to a pay-as-you-go policy in current spending and should not borrow except for unavoidable emergency purposes.

Cities which have been living at a less-than-normal basis should use savings in bringing the level of public service up to a more acceptable standard.

A portion of the surplus or saving which a city is able to effect should be used in developing comprehensive plans for the post-war period. Money spent on planning right now will return large dividends later.

Cities that are able to do all this and still have a surplus should build up a reserve and invest such funds in war bonds.

For Reduced Expenditures and Increased Debt Repayment

Another recent authoritative discussion of the problem of wartime municipal spending and saving was an address delivered at the annual meeting of the Civic Federation of Chicago on November 23, by Simeon E. Leland, Professor of Government Finance at the University of Chicago and Chairman of the Board of Directors of the Federal Reserve Bank of Chicago.

Outlining an economy program for municipalities, Dr. Leland suggested "that all non-essential services should be cut; that capital improvements should be postponed until after the war (save those required to keep public property in good repair or those actually connected with increasing the war effort); that unnecessary employees should be fired; that those paid should work at least 44 hours a week; that wage adjustments should be made only on the basis of actual rates of pay in comparable alternative employments; and that labor-saving methods and cost-reducing processes should be adopted." In short, a plea was made for better service and reduced expenditures.

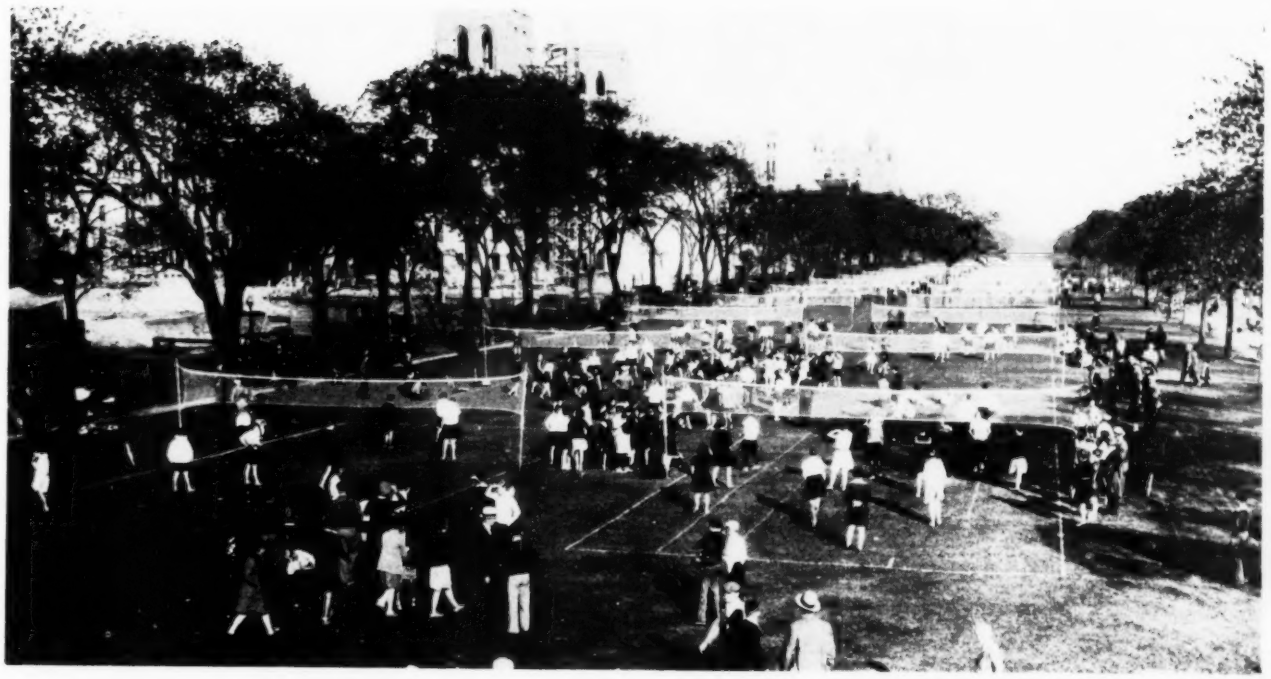
Urging the wartime postponement of capital improvements, the speaker added:

It must be said, of course, that all capital improvements cannot be stopped. Some must be made on areas where the location of war plants requires the extension of utility and related services. Water mains, sewers, streets and roads, as well as electricity, must be taken to those plants. In some areas increased school, recreational, and health facilities will be required. These are part and parcel of the war effort. In some cases the federal government has assumed their cost; more frequently, however, the increased burden has been cast on local government. (And incidentally the local governments have been unable to tax adequately the new plants or the flows of income arising from production.) By and large the exigencies of the war have not created grave financial problems for the governments of this area with respect to capital improvements. The important thing is to prevent projects from masquerading in a war disguise. In too many places over the country, for example, labor, machinery, and building materials are being used to build highways that will never be devoted to war use. Some of the materials are coming from governmental stock piles, or political hoards, which when exhausted will end such construction. But even now they could be put to better use.

Pros and *Cons* Discussed

Answering the question, *Should taxes be reduced?*, Dr. Leland discussed some of the *pros* and *cons*, and added:

On a balance of all considerations it seems far better that state and local governments should maintain present tax rates than that they should reduce them. Expenditures, however, should be cut to the bone, and the savings should be applied to the payment of outstanding bills, to the reduction of floating debts, and to the retirement and open-market purchase of outstanding bonds. This will improve the financial position of state and local governments. An improved financial condition is their best asset. With reduced debts, state and local governments can enter the period ahead with assurance and with credit reserves equal to the emergencies they will face. By reducing debts and cutting off interest payments, taxpayers will get the kind of tax reduction which will do them the most good—permanent benefits from reduced interest. The present holders of debt obligations can be sold war bonds. The time for debt reduction is when national income is large—when it is going up. That time is now.



Parks serve physical fitness, in the American way, providing for fun with exercise.

The Place of Parks in a World at War

Team-Work—Physical Fitness—Nervous Stability

By V. K. Brown
Director of Recreation
Chicago Park District

IN 1940 the Chicago Park District looked over its situation and found the outlook very ominous. As yet America was not at war, and everyone still hoped that we could avoid being drawn into the conflict. But even a superficial observer could see that the war was certain to bring new problems, whether or not America was directly involved in the fighting. Would we, with all our wealth, be able to afford the luxuries and refinements we were used to, or would taxpayers be forced to decide what was luxury and content themselves with bare necessities? And if luxury must be dispensed with, is a park system and service a luxury or is it a necessity? The future of parks, we thought, might well depend on the answer to that question.

We attempted to review the evidence and then to find out what the people themselves thought on the subject. Some facts we already knew. Chicago uses its parks. They are not mere ornaments dressing up the city. They are utilities, as is shown by a 50,000,000 annual attendance, which means that Chicago citizens come to one of our parks on an average of once in three-week intervals throughout the year.

We found that when delegations appeared before our Board of Commissioners, asking for improvements or for the creation of a new park, they used, as supporting argument, the convictions they had on the value of the proposed investment. As we reviewed the arguments, the ones most frequently used did not prove reassuring. Usually it was urged by delegations that parks and recreation centers are desirable places "to keep children off the streets." Sometimes this argument was supported by the further statement that play facilities prevent delinquency. Both of these statements were heard often enough to indicate that the ideas expressed had become part of the public thinking. On inspection, both ideas seemed negative, not positive, and we felt that it was doubtful if negative values would be rated as necessities if the time should ever come when decreased income would compel radical readjustment of the purposes for which people would be willing to spend tax money.

We found that for over 35 years, in interpreting the park service to our citizens, we had been saying that our community centers developed neighborliness and acquaintance. We had said that they helped to maintain community morale—that they enriched our common life together as a people.

We had talked about the development of personality, the building of character. We had indicated that sportsmanship and fair play in games emphasize standards and discipline. We had talked of physical development. We had insisted that beauty has its values. We had proclaimed that in a machine age we need means of relaxation and release from damaging tensions. We had said that a mere brute struggle for existence is not satisfying, that there must be cultural purposes.

All these points we had stressed in talks before citizen audiences, in printed reports, and other forms of publicity. We had our radio program, broadcasting to whomever might care to listen. But still, many of our citizens, expressing the ideas that had found lodgment in the public mind, continued to say only that our parks were fine places to keep children off the streets.

Our survey of public opinion, therefore, was not reassuring. It convinced us that our attempts to insinuate our own ideas into the public mind had not proved very successful. As propagandists, we had to admit our failure.

So we decided that if, in 35 years, we hadn't done a better job of impressing people with the values of their park investment, we had better change our methods. If all our talk had had so little effect, we resolved to listen before talking further.

All we had to do was to ask questions, and when we had made ourselves listening posts, we soon found three lines of thinking current in the public consciousness. They were uneasy feelings, but they had not rounded themselves out to become set ideas. They were still taking on new applications—groping for further meanings. In other words, they were susceptible of added practical application to the facts of everyday life, if we could provide such practical applications. They gave us an opportunity to hitch our own ideas onto a train of thinking, ready for other units to be coupled onto the train and to go along with it.

Developing Team-Work

The first such idea which we found to be prevalent was this: the things that have happened abroad have demonstrated the sheer necessity of national unity. We must keep united here in our own homeland. Unless we stand solidly, in unbroken ranks, shoulder to shoulder, there is no security possible for any of us. Enemy penetration, turning our flanks, might roll up our whole front.

Here was a peg, an idea, on which we might hang the things we had been saying about developing neighborliness, acquaintance, understanding, faith in each other. We could now talk about teamwork, about getting acquainted with one's neighbors, and be sure that our audience understood what we were talking about. We could say:

"Yes, I think you are right. We must get together and stick together in this country! We must have unfailing loyalty. But don't you think that we get some training for that kind of team-work out of our experience in team-work in our sports? In our community life, don't you think that we learn, by practice, loyalty to each other?

"Don't you think, for example, that the discovery that our foreign-born citizens are just as much interested as we are in community improvement does something to give us confidence in them, as fellow citizens? Doesn't it bring us together? If you were an enthusiast in gardening, and discovered that a lot of your neighbors were equally devoted gardeners, you would not care how much property they had, or what language gave a foreign accent to their speech—you would think that they were pretty wholesome folks. You would welcome them as friends and teammates, discovering that you had a lot in common. That is where your parks fit into this need of unity. They get people to doing things together. They can be mighty useful to you now, in meeting this very essential that you are talking about."

When we say that, after the citizen has brought the subject up himself, we are talking his language—he understands. And it is *his* idea—not one somebody else is trying to put over on him. That fact makes a difference in his attitude. He welcomes additional ideas when they second his own motion.

The Stimulus of Challenge and Difficulty

The next idea which we found to be so widespread as to be almost universal was this: the world cannot burn up its wealth the way it is now doing, it cannot devote all thought and action to destruction, without bringing tough times, out ahead. Lean days; poverty; hardship. We will have to rebuild. We will have to work harder than we have ever done before. There is a pioneering job stretching out before us after this war is over—the job of building the world all over again. We must prepare ourselves for that job, just like our pioneer forefathers. We must get lean, and hard, and tough—and grim. We must be physically fit. In response to that idea, we could say:

"We can be thankful that we have some equipment to help us. We have our park swimming pools, our sports fields, our hiking trails, our boating

Hobbies help to relax and regain steadiness, to combat the "War of Nerves."

lagoons, our areas for coasting or skating, or camping, or mountain climbing. I don't believe (and I have a hunch that you don't believe) that Americans are going to get physically fit by going through a dull and uninteresting set of formal exercises. We have to make our exercise interesting. We have to have some fun with it. We have to set ourselves some hurdles and get the thrill of sailing over them.

"Every sport that we have keeps alive by constantly becoming more difficult! When free to express their choice, people evidently don't want an easy life. Billiards move into 3-cushion; golf courses build new and more difficult hazards; manufacturers develop the livelier ball in baseball; the sportsmen themselves introduce the forward pass in football. Why, we even have the 2-move restriction in checkers! Whist becomes bridge, and then contract. That's the way sports evolve. And because there is something in us that is stimulated by challenge and difficulty, we go in for competition—we want to find out just how good we are. When somebody sets a new world record, everybody else in the sport tightens up his belt and goes after the new record, until presently all the boys are away out beyond what they formerly considered their ceiling.

"Our parks certainly fit into this need that you have been talking about. We have our paths for going it, on foot, with knapsacks on our shoulders —our places for roughing it, with wood smoke in our faces—our facilities for athletics and sports, where muscles labor, and tire, and ache. If America is going to tackle this tough situation with typical American spirit, it is lucky we have such practice grounds to get ourselves into shape for the grim job we face. Don't you think so? What we need now is to organize and get behind a movement to persuade everybody not to sit idly talking about getting into physical condition, but rather to make ourselves each a missionary for the cause, getting all our acquaintances and friends out into the game, or the open, to toughen up, to harden up, and get ready for whatever may come in the future."

To Win the War of Nerves

The third idea which we found to be widespread was a result of the public attention given to the "war of nerves" abroad. Fortunately would-be world conquerors did not keep their counsel to themselves; they chattered like a lot of gossips; everybody, listening in, became aware of just what they were pulling on the rest of us. They told us what to expect.

National unity begins with neighborly acquaintance, team-work, and citizen confidence in each other.

We knew we had been through a lot, this generation. We knew that the first world war, our losses in the depression which followed it, the crumbling of our economic order, the upsetting of forms of government we had previously thought secure—all these experiences had brought us to the ragged edge. We felt that we were on the verge of becoming jittery, if we were not, in fact, already so. We knew that our nerves were getting jumpy. We knew that we were subject to hysteria. We had become suspicious of everything and everybody—the so-called "politicians" in office, the "pressure groups" in the seat of government, "big business," "labor," the "subsidized press," "capitalism," "reformers"—everything!

Now with enemies astutely fomenting fears and suspicions, we realized that we were susceptible to their manipulations. We were easy marks, prepared to order, for whatever they might want to do to us. The war of nerves was on. Everybody knew it. Everybody was worried about it. Everybody asked himself—how can we relax? How can we calm down, get a good night's sleep, and come back to face our problems with calm and rational judgment in the morning? Steady does it, but how can we become steady? We have tremendously important decisions to make; we have to make them with sanity. How can we escape the effects of all the pounding our nerves have taken? Where shall we find nervous restoratives? How can we achieve emotional balance? How can we get nervous stability?

At the very moment when people in the mass were asking such questions, we were able to say:

"Again you have hit the bull's-eye That is, perhaps, our most fundamental problem. Admiral Nimitz is reported to have said that his most valuable weapon is the morale of his men. Likewise the most valuable asset of the nation now is doubtless the morale of its home front, its supporting and toiling citizenship, their calm steadfastness. It is fortunate that some citizens are wise enough and keen enough to see it.

Nature's Nerve Tonics

"But it is also fortunate that we have our park development in this country to help us find the answer. Getting out into the woods, under the trees, sitting on the shore of the lake or the bank of the river, picnicking with the family on the grass, smelling wood smoke, or hiking down the nature trails, listening to the birds and observing the flowers, going for a swim after a tough day in the office, getting

(Concluded on page 95)

New Pumps Pump Back Their Cost

Measuring the Benefits That Modern Pumping Equipment Is Giving to Lewiston, Idaho

LEWISTON, Idaho, is collecting dividends on its new, modern pumping plant completed early in 1942. Pumping costs have been lowered; operating conditions have been improved; the fire insurance rate is to be reduced giving the northwest city the most favorable rating in the state.

Lewiston is proud of its water supply, and has good reason to be. W. P. Hughes, veteran city engineer, enjoys showing you the comparative characteristics of water in this city with the standards set by the U. S. Treasury. It is enough to say that the Lewiston supply has no trouble meeting requirements. With no turbidity, no color, with only 33 ppm of magnesium, .08 ppm of iron, and only 9 ppm of carbonates, one can appreciate the reason for this pride.

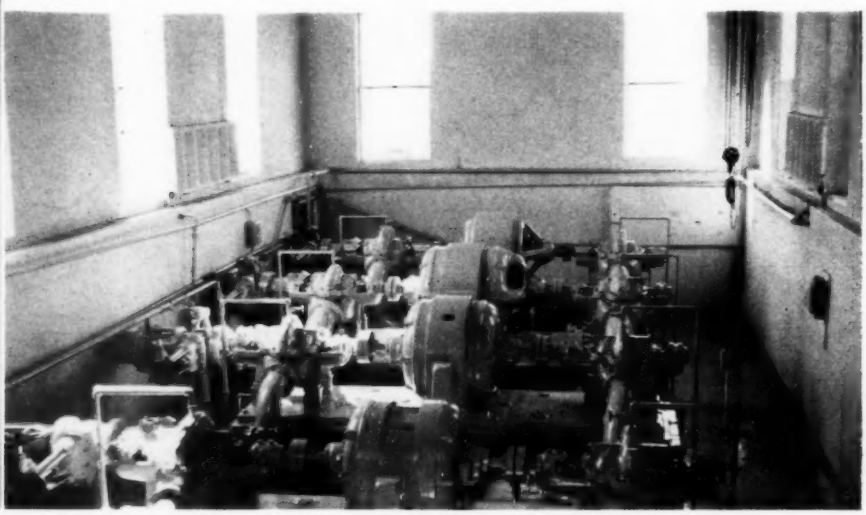
The history of water distribution here is as rugged and lusty as the West itself. Back in 1878 water was distributed in barrels selling for 25 cents a barrel. Later, when settlers built their first crude distribution system, they considered a real luxury the turbid, heavily organic river water that came out of their taps.

The selection of the correct source of supply presented a real engineering problem at Lewiston. The Snake River and the Clearwater River as well as several smaller streams afforded possibilities for gravity surface supplies. Also, there was a shallow well supply near the Clearwater River and a number of deep well locations that could have been developed. However, thorough investigation showed definite advantages in the Clearwater River. Lower construction costs, strategic location, and water of favorable mineral characteristics were all factors that led to the decision to use Clearwater River.

And so, back in 1922, with the source of supply definitely selected, Lewiston proceeded to build a treatment plant. Essentially it consisted of the standard chemical feeders, coagulation chambers, sedimentation basins, and rapid sand filters, the mixing chambers providing a mixing period of 30 minutes with a velocity of 1 ft. per second. The sedimentation basins provided a retention period of about 3½ hours when operating at the rate of 6 mgd. There were four rapid sand filters with provision for additional units when future growth required them. They were designed to filter at the rate of 125,000,000 gallons per acre per day; each had a daily capacity of 1,500,000 gallons.

Outgrows Pump Capacity

This well-designed system served the city adequately for 20 years. However, by 1940 Lewiston began to outrun the design span of the plant. The filters were still adequate, but the pumps were reaching the end of their capacities, particularly during the summer months.



Left: The control panel in the pump room showing metal enclosed switchgear. Below: Four of the five new pumps handling the finished water. Three of these in the background supply the high service for the residential area, the others supply the low service for the business district.

Actually there was dangerously little reserve capacity still remaining in the plant.

Furthermore, the mechanical efficiency of pumps had developed so rapidly during the past decade that the existing pumps, even though they were working as well as could be expected considering their years of service, had now become an operating liability, and the Water Department was being penalized for every day that they were left in operation. Also repair parts were increasingly difficult to purchase.

Finally, the characteristics of the old pumps were such that it was difficult to adjust the consumption of water.

Overhead storage is no problem at Lewiston. Here is shown one of the five reservoirs, located in the hills, that supply water for the town.

Distribution Problems

Lewiston, situated as it is in the mountainous northwest district, presents some problems in water distribution. The business district is located in a low area close to the river, while the main residential district is on a second bench in the hills approximately 150 feet higher in elevation. This has made it necessary to serve the city by two separate distribution systems and reservoirs, interconnected to provide additional capacity in case of fire emergency. The pumping equipment in these "high" and "low" service systems was what needed and received attention.

To provide easy flexibility of operation and increased capacity in the high service lines, two Allis-Chalmers units were installed. One is a 300-hp slip-ring variable speed motor capable of pumping from 1,200 to 2,100 gpm. The second is a 150-hp unit with a rated capacity of 1,050 gpm. One old campaigner, an 8-inch, two-stage DeLaval pump with a capacity of 2,100 gpm still remains. Reset and equipped with new starting mechanisms, its efficiency has been increased notably. The low service pumping equipment now consists of two Allis-Chalmers 100-hp units each with a rated capacity of 1,050 gpm.

Modern equipment makes it possible to measure and control flows to the high service system. A 16 x 9½-inch venturi tube meters the flow and a Bailey synchro-type transmitter, connected to a recording receiver, measures the rate of flow throughout the day. A flow indicator, also operated by the transmitter, enables the operator to control the variable speed pump in order to meet the water demands. A Bailey recording flow meter is used on the low system also, but it is an older type which has been in service for a number of years. An orifice plate is used in the discharge line on the low system instead of a venturi tube.

All control features are governed by the use of a new well-equipped G-E cubicle-type control panel. Two panels are required for the 300-hp slip-ring motors. The entire board is well instrumented to provide control of all operations.

Construction Problems

Inasmuch as these renovations took place while the plant was in operation, difficulties were experienced in making the change. Construction procedure required careful planning in order to continue operating and supplying water while suction lines were torn up and old pumps removed. It is interesting to note that the plant was down for only three days during the entire construction period. The stored water amply met requirements during that time.

Since the pumps have been placed in operation Mr. Hughes has been able to assemble data to show their earning capacity. Figures for the ten months' operation show an earning in power costs of $5.776 per million gallons as compared to the same ten months of the previous year. During that period 437,066 million gallons were pumped, which made an earning of $2,525.49.

Ten Months	Gallons of Water	Power Cost	Power Cost pmg
1941	405,650,000	$9,845.80	$24.272
1942	437,066,000	8,079.60	18.486
		Power cost saving pmg	$5.776

The power saving is made possible by the higher efficiency of the new pumps and motors and by a wider choice of units, making it possible to select pumps which more nearly net the water consumption. Better utilization of power is attained by keeping down the demand rating. Running a large pump for a short time is much more expensive than operating a smaller one over a longer period with low demand. The saving during the hot dry season of heavy consumption is, of course, due to the higher efficiency of the new pumps.

Personnel

Burns & McDonnell Engineering Co., of Kansas City, Mo., not only designed the original purification plant but also were responsible for the details on the new installation. Direct supervision of the work was under City Engineer W. P. Hughes. Assistant City Engineer, R. B. Anderson was in charge and actively inspected construction work. Winston H. Berkeley, Plant Superintendent, was in charge of operations.

DeLuxe Accommodations

For Village Public Works and Police Department

PHOTOGRAPHS FROM BRONXVILLE YEARBOOK

A view of the attractive and well-arranged public works yard

WHEN officials of Bronxville, N. Y., decided to rebuild their village hall, they departed from the general procedure and put both the Public Works and Police departments into accommodations that are not only adequate and conveniently located, but attractive as well. The Public Works Department is housed in a well-designed brick garage-and-shop built in the form of a U, walled off across the front and located close to the Village Hall. Likewise, the Police Department has been placed conveniently on the ground floor of the Municipal Building, avoiding the need for the officers to run upstairs and down constantly in order to complete their calls.

Bronxville, a suburb of New York City, does not have the same type of problems that one finds in communities generally. A town of 7,000 people, it is composed primarily of better-class residences. In keeping with this, the Village Hall and the facilities for the Public Works and Police departments are designed along lines that would indicate a civic-minded residential community.

Public Works Department

The Public Works Department, under the supervision of A. E. Waller, Commissioner, has charge of maintenance, repair, and construction of streets and sewers, of parks, parking meters, public buildings, automotive equipment, removal of refuse and garbage, and finally of street cleaning and snow removal. There is no sewage-treatment plant, since sewage is discharged directly into a larger county trunk system. Water is supplied by a private company.

For garbage and refuse removal, the Village uses one F. W. D. truck and two Chevrolet trucks with enclosed bodies of the rear bucket loading type. Twelve men are constantly employed on refuse removal. All burnable material is disposed of in an incinerator owned and operated by the Town of Eastchester of which Bronxville is a part. Imperishable wastes are disposed of at dumping points on private lands where fill is desired. Approximately 23,000 tons of burnable and 32,000 tons of unburnable material are handled annually. A Ford truck with dump body and its crew performs other incidental collection work as required.

One F. W. D. truck and two Ford trucks with dump bodies serve on construction work, maintenance

(Concluded on page 95)

Bronxville's police department. Reading from left to right: H. Lloyd Jones, Commissioner; Lt. Michael McGuire, Radio Engineer; William Smith; and Patrolman Russell Masker

Probable Post-War Population Shifts

By PHILIP M. HAUSER
Assistant Director
Bureau of the Census

THE magnitude and direction of internal population movements have been vitally affected by the tremendous industrial conversion and expansion necessitated successively by the defense, lend-lease, and war production programs. To meet urgent demands for some information on the subject, the Census Bureau, although fully cognizant of the limitations of the data, has used, as a basis for a series of civilian population estimates, figures on the number of registrations for War Ration Book One (sugar registration) conducted last May.

One of the outstanding characteristics of wartime population shifts in the United States has been the extent to which population increase has been concentrated in a relatively few metropolitan counties or groups of counties.*

Of 137 metropolitan counties or groups of counties for which estimates are available, 88 showed a gain in civilian population between April 1, 1940 and May 1, 1942, while 43 showed a decline and 6 showed no appreciable change.

Very large gains have taken place in the metropolitan counties of the following cities: Detroit, a gain of 336,000; Washington, D. C., 231,000; Chicago, 149,000; Los Angeles, 131,000; Norfolk, Portsmouth, and Newport News, 107,000; St. Louis, 97,000; San Diego, 97,000; and San Francisco and Oakland, 95,000. The largest percentage gains were recorded in the areas centering in San Diego; Norfolk, Portsmouth, and Newport News; Mobile; Corpus Christi; and Washington, D. C., all of which had a civilian population gain of more than 25 per cent. The largest loss, 365,000, occurred in the New York-Northeastern New Jersey metropolitan counties.

Permanence or Transiency of Growth

Are these wartime population shifts temporary or permanent? No one can answer this question with certainty, but one relatively simple criterion that can be applied in an effort to answer it is that of previously observed growth. To obtain at least a crude analysis of the relative permanence of the wartime population growth of metropolitan centers as measured by previous population increases, the average annual rates of growth of the 137 metropolitan areas studied have been arranged by quartiles for the periods 1920-30, 1930-40, and 1940-42. The areas in the fourth quartile are those with the highest rates of growth; areas in the first quartile are those with the lowest rates of growth.

A comparison was then made of the quartile rankings of the three periods of growth under observation. Four classes of metropolitan counties were distinguished:†

(A)—those which grew relatively rapidly since the onset of the war and which in the light of previously observed rapid growth may be expected to retain their population increments;

(B)—those which grew rapidly during the war but whose population increase in the light of previously observed small increases may be regarded as relatively temporary unless their wartime activities are converted to normal peacetime functions after the war;

(C)—those which lost population or grew very little as a result of the war, but which in the light of good past performance may be expected to "come back" in the post-war period;

(D)—those which decreased or gained very little during the war and which in the light of relatively poor past performance cannot be expected to grow rapidly in the immediately future.

Class A Metropolitan Counties

The first of these classes of metropolitan counties, those whose wartime growth has been rapid and which may be expected to retain their population growth, was made up as follows:

Class A-1 Areas: Those which grew most rapidly during the war with the *best prospects* of retaining their wartime growth:

Corpus, Christi, Tex.
Dallas, Tex.
Jackson, Miss.
Jacksonville, Fla.
San Antonio, Tex.
San Diego, Cal.

Class A-2 Areas: Those which grew most rapidly with *superior prospects* of retaining their wartime growth:

Charleston, S. C.
Columbia, S. C.
Columbus, Ga.
Galveston, Tex.
Mobile, Ala.
Washington, D. C.

Class A-3 Areas: Those which grew at above average rates consistently for each of the three periods under observation and which are assumed therefore to have *excellent prospects* of retaining their wartime growth:

Atlanta, Ga.
Austin, Tex.
Beaumont-Port Arthur, Tex.
Chattanooga, Tenn.
Detroit, Mich.
Forth Worth, Tex.
Houston, Tex.
Kalamazoo, Mich.
Knoxville, Tenn.
Little Rock, Ark.
Los Angeles, Cal.
New Orleans, La.
Nashville, Tenn.
Sacramento, Cal.
San Francisco, Cal.
Shreveport, La.

Class A-4 Areas: Those which grew at above average rates or most rapidly during the war period with *good prospects* of retaining their growth:

Augusta, Ga.
Baltimore, Md.
Davenport-Rock Island-Moline (Ia. & Ill.)
Denver, Colo.
Evansville, Ind.
Indianapolis, Ind.
Macon, Ga.
Norfolk-Portsmouth-Newport News, Va.
Portland, Maine
Richmond, Va.
Salt Lake City, Utah
Savannah, Ga.
Seattle, Wash.
Tacoma, Wash.
Wilmington, Del.

Class A-5 Areas: Those which grew at above average rates in the war period with *fair prospects* of retaining their wartime growth:

Canton, Ohio
Chicago, Ill.
Cincinnati, Ohio
Columbus, Ohio
Decatur, Ill.
Fort Wayne, Ind.
Hamilton-Middletown, Ohio
Portland, Ore.

* Metropolitan counties or groups of counties, that is, counties half or more of whose population were in metropolitan districts, are considered instead of metropolitan districts because sugar ration data were available only for counties.

† Milwaukee and Montgomery (Alabama) counties were not classified because available figures are now being revised.

Pueblo, Colo.
St. Louis, Mo.
Springfield, Ohio

Class B Metropolitan Counties

The second class of metropolitan counties, which we may term Class B areas, were those which grew rapidly during the war but whose growth may be transient unless their wartime activities are successfully converted to normal peacetime functions. These areas may be divided into two groups.

Class B-1 Areas: Those with most rapid wartime growth, whose growth although far above that of the depression years exceeded by little, if any, their 1920-1930 growth rankings. Metropolitan counties in this class, in the light of their relatively rapid growth between 1920 and 1930, may perhaps be easier to convert to normal peacetime functions than the Class B-2 centers below:

Birmingham, Ala.
Dayton, Ohio
El Paso, Tex.
Hartford-New Britain, Conn.
Rockford, Ill.
Tulsa, Okla.
Wichita, Kans.

Class B-2 Areas: Those with above average or most rapid wartime growth whose relative growth was far above that in either of the preceding two periods of observation. The relatively low growth rankings of these areas during the 20 years preceding the war indicate that it may be relatively difficult to convert their wartime functions to normal peacetime activities:

Akron, Ohio
Bridgeport, Conn.
Johnstown, Pa.
Louisville, Ky.
New Haven, Conn.
Waco, Tex.

Class C Metropolitan Counties

In the third class of metropolitan centers, Class C, are those which lost population during the war or which barely held their own, but which in the light of past performance may be expected to "come back" in the post-war period. These metropolitan counties may be divided into three classes.

Class C-1 Areas: Those which lost population during the war period with excellent prospects of "coming back" because of previously observed above average or most rapid rates of growth:

Amarillo, Tex.
Asheville, N. C.
Binghamton, N. Y.
Charleston, W. Va.
Charlotte, N. C.
Lansing, Mich.
Oklahoma City, Okla.
Peoria, Ill.
Stockton, Cal.
Winston-Salem, N. C.
Miami, Fla.

Class C-2 Areas: Those which gained very little or barely held their own, with excellent prospects of "coming back" because of previously observed above average or most rapid rates of growth:

Durham, N. C.
Madison, Wis.
Memphis, Tenn.
Phoenix, Ariz.
San Jose, Cal.
Tampa-St. Petersburg, Fla.
Waterloo, Ia.

Class C-3 Areas: Those which lost population or gained very little during the war period and which have *fair prospects* of "coming back" because of an above average or most rapid rate of growth during at least one of the two preceding periods:

Cedar Rapids, Ia.
Des Moines, Ia.
Flint, Mich.
Fresno, Cal.
Huntington (W. Va.)-Ashland (Ky.)
Minneapolis-St. Paul, Minn.
New York-Northeastern N. J.
Roanoke, Va.
Spokane, Wash.
Springfield, Mo.
Topeka, Kans.
Youngstown, Ohio

Class D Metropolitan Counties

Finally, in the fourth class of metropolitan centers, Class D areas are those which decreased during the war or gained very little, and which in the light of past performance seem to be relatively stable—that is, cannot be expected to grow rapidly in the immediate future. These metropolitan counties can be divided into three classes (the first of which may well belie the class into which they have been put).

Class D-1 Areas: Those which lost population or grew very little during both the war and the depression but which grew at an above average rate or most rapidly between 1920 and 1930:

Atlantic City, N. J.
Cleveland, Ohio
Grand Rapids, Mich.
Kansas City (Mo.)-Kansas City (Kans.)
South Bend, Ind.

Class D-2 Areas: Those which grew very little or not at all during the war and which in the light of past performance have little prospect of rapid post-war growth:

Allentown-Bethlehem-Easton, Pa.
Buffalo-Niagara, N. Y.
Erie, Pa.
Harrisburg, Pa.
Omaha (Nebr.)-Council Bluffs (Ia.)
Philadelphia, Pa.
Providence, R. I.
Springfield-Holyoke, Mass.
Terre Haute, Ind.
Trenton, N. J.
York, Pa.

Class D-3 Areas: Those which lost population during the war and which in the light of past performance have little prospect of recouping their losses. Many of these centers, in fact, also lost population during the depression:

Albany-Schenectady-Troy, N. Y.
Altoona, Pa.
Boston, Mass.
Duluth (Minn.)-Superior (Wis.)
Fall River-New Bedford, Mass.
Lancaster, Pa.
Lincoln, Nebr.
Manchester, N. H.
Pittsburgh, Pa.
Racine-Kenosha, Wis.
Reading, Pa.
Rochester, N .Y.
Saginaw-Bay City, Mich.
St. Joseph, Mo.
Scranton-Wilkes-Barre, Pa.
Sioux City, Ia.
Springfield, Ill.
Syracuse, N. Y.
Toledo, Ohio
Utica-Rome, N. Y.
Wheeling, W. Va.
Worcester, Mass.

The Study Summarized

Let us with broad strokes summarize the results of this analysis. Of the 135 metropolitan counties, 54, or 40 per cent, are Class A areas — areas which experienced rapid wartime growth and which with varying degrees of probability, on the basis of previously observed growth alone, are likely to retain their wartime population increase. Thirteen, or 9 per cent, of the metropolitan centers are Class B areas—metropolitan centers whose rapid wartime growth may be regarded as transient in character unless their wartime activities are successfully converted to normal peacetime functions. Thirty of the metropolitan counties, or 22 per cent, are Class C areas—those which lost population during the war or which barely held their own but which in the light of past performance may be expected to come back. Finally, 38, or 28 per

cent. of the metropolitan counties are Class D areas—those which decreased during the war or gained very little and which in the light of past performance are not likely to grow rapidly in the post-war period.

On a regional basis it is clear that the metropolitan centers which have grown most rapidly and which, in terms of the criterion of past growth used, have the best prospect of retaining their growth are in the South and in the West. Of the 28 metropolitan counties in Classes A-1 to A-3—those which have the best prospects of retaining rapid wartime population increments—22 are in the South, 4 in the West, and only 2 in the North. Whereas approximately two-fifths of all the metropolitan counties are Class A areas, more than three-fifths of the southern and western areas are in this class, as contrasted with approximately one-fifth of the northern metropolitan counties.

At the other extreme, 38 of the 39 areas which decreased or grew very little during the war, and which are not likely to increase rapidly, are in the North. Whereas a little over one-fourth of all the metropolitan counties fall in Class D—the relatively stabilized cities—only 2 per cent of the southern cities and none of the western areas fall in this class, as contrasted with almost half of the northern centers.

The Class B centers—those whose wartime growth is relatively transient—include 9 per cent of all the metropolitan counties, 10 per cent of the southern areas, none of the western and 11 per cent of the northern areas. Finally, in the Class C areas—those which lost population or grew very little but which may reasonably be expected to come back—there were included 22 per cent of all the metropolitan counties, 25 per cent of the southern areas, 41 per cent of the western, and 15 per cent of the northern.

It is significant that the picture of rapidly growing metropolitan centers in the South and in the West obtained through this analysis is in conformity with that obtained from other studies. This is not surprising in light of the fact that the South is the least industrialized and urbanized of the regions of the nation and has recently begun to feel the impetus of industrial and urban development, and that the West is also still in a developmental state. The war, which has required tremendous industrial expansion through the various stages of defense, lend-lease, and war production programs has given great impetus to developments in the South and West which are under way and has failed to revive the growth of the relatively highly-industrialized, mature, and stabilized centers of the North.

A Word of Caution by the Author: This classification of counties is undoubtedly full of pitfalls and is to be regarded only as a first approximation to the type of analysis desired. In the first place, it is to be remembered that the index of wartime population growth is based on sugar registration data and the relative growth rankings are, therefore, subject to some error for individual metropolitan centers even if the general picture may be regarded as approximately correct. Second, it is to be noted that the analysis made is relatively crude and entirely mechanical in terms of the quartile rankings of growth. In using this mechanical means of classifying the metropolitan centers, it is, of course, assumed that past growth is an indicator of future growth, an assumption which is obviously subject to considerable error. Further refinement of the data and analysis of specific industrial and other economic factors, such as the case of converting wartime production facilities to peacetime functions, would undoubtedly lead to a number of changes in classification.

Moreover, and fundamentally more important, the dependence of these predictions upon previously observed rates of growth of the metropolitan counties, assumes that the post-war economic order will in general represent a continuation of our national economy as we have known it in the past. This, it goes without saying, is a dangerous assumption. The character of our post-war economy and of our internal population distribution will in a large extent depend upon unpredictable national and international political, economic, social, and technological developments, a discussion of which is beyond the scope of this paper.

On the technological side alone, there is ample reason for accepting any predictions of post-war population distribution with considered caution. For example, the large-scale use of the mechanical cotton picker may greatly modify the population distribution of the South and therefore of the nation at large. The development of the helicopter may, if speculation is permitted, result in fundamental redistributions of our population within and among metropolitan centers, between urban and rural areas, and among the states. The development of air cargo transport has also been regarded as a factor which may be revolutionary in its effect on population concentration.

—From an address delivered at the Wartime Marketing Conference of the American Management Association on January 15, 1943, at the Hotel Drake, Chicago.

Annual Pay Basis for Cities' Laborers

DAY-LABORERS on city payrolls are going on a monthly or annual salary basis in a growing number of cities, according to the International City Managers' Association. Demand for their services elsewhere at higher wages is contributing to the trend. Most of the cities having long enough experience with annual pay for skilled or unskilled laborers report the action has resulted in higher quality of workers and lower turnover, and more people are interested in applying for the jobs.

During the last two years cities placing day-laborers on a salary with privileges of sick leave, vacation, promotion, and retirement benefits have included Detroit and Escanaba, Mich., and Dallas, Texas. The city of Milwaukee, which started the move during the depression, with 700 employees, has increased the number so that now now only 50 laborers in the entire service still are paid by the hour.

Among cities which have paid monthly or annual salaries to laborers for some time are Sacramento, Cal., which 10 years ago placed all laborers except garbage collectors on annual salary; Minneapolis; and the Los Angeles school district. Other cities placing some but not all laboring jobs on such a basis include Cincinnati, San Diego, Everett, Wash., Wichita Falls, Tex., and New Rochelle, N. Y.

Annual or monthly pay rates for the laboring employees are calculated in various ways. In some cases, the hourly or daily rate received is multiplied by the standard work week and then by 52; in others a pay survey among public and private employees in like positions is conducted; or actual annual earnings of a representative number of such employees are approximated.

The most serious problem in making the change is stabilizing work sufficiently to make possible the annual basis of employment. In some cities the same employees are utilized at different times in different types of work requiring similar aptitudes; in other cities the work program is planned ahead in order that approximately the same numbers and types of employees may be utilized at all times.

Congratulations to Springfield!

The Springfield, Ill., municipal light and power plant gave its 18,000 customers $100,000 last month. Customers were billed as usual for December, but the full amount was returned in the form of war bonds and stamps. Over-all average of the bills was $5.50 a customer, with bills ranging from 50 cents minimum to more than $1,000 for the public schools, large factories, and several coal mines, according to information to the American Municipal Association.

Newark's 962 Parking Meters Collecting $6,000 Per Month

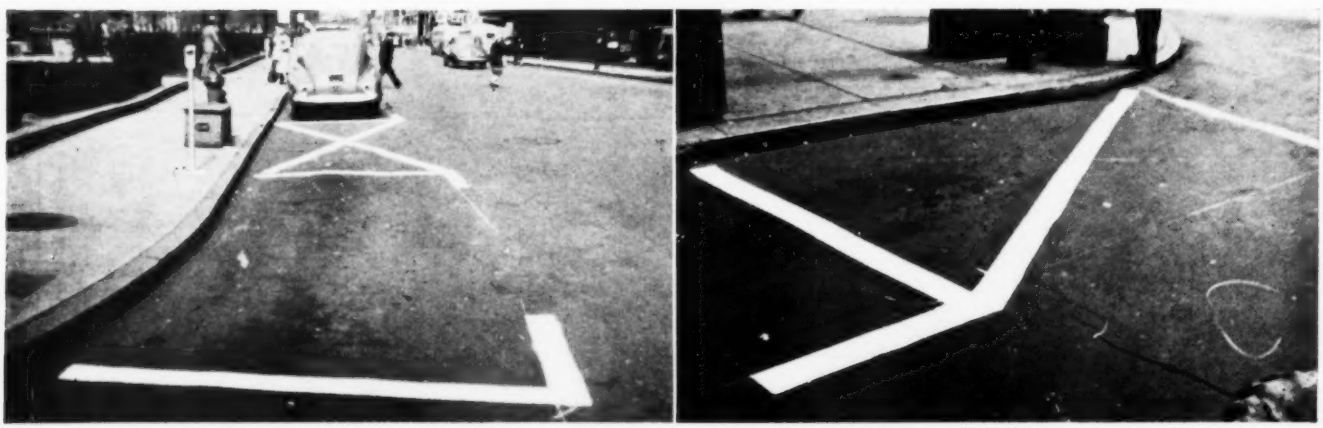
By JOHN B. KEENAN
Director
Department of Public Safety
Newark, N. J.

THE 962 parking meters in Newark, N. J., in April 1942, have been collecting at the monthly rates shown below. It will be seen that despite present automotive conditions, there has been little let-down in parking requirements in this city. Moreover, the use of the meters has not been as tie posts for horses but as available spaces for people on business in the central district.

The meters are effective all the time in preventing the return of the all-day business parker. Shortly after installation, there were a number of requests for additional meters, and we foresaw an eventual need for a possible 4,000. Such plans, of course, are now in abeyance, but a final advantage of our having the present parking meters is that we now know what to do to prevent parking congestion in our business district when traffic swells to its old or greater proportions after the war.

Collections have been as follows:

April	$5,627
May	7,324
June	7,210
July	6,619
Aug.	6,030
Sept.	6,364
Oct.	6,772
Nov.	5,938
Dec.	6,219



Painted traffic lines show when and where not to park in metered zone of Newark, N. J.

Oil Shortage Threatens Municipal Diesel Plants

New York Communities Are Asked to Purchase Coal-Generated Electric Power

ON January 14, New York newspapers reported that the New York State Public Service Commission had asked the Petroleum Administration for War to direct the Long Island municipalities of Rockville Centre and Freeport to convert their diesel-electric plants to steam plants, and meanwhile to purchase power from the Long Island Lighting Co. It is said that the consumption of these two plants amounts to 200,000 gallons or 4,760 barrels of Colonial Beacon No. 5 fuel oil per month. Incidentally, they have had no trouble thus far in obtaining it.

Has National Significance

The facts appear to be that an order had not been issued but that the chairman of the Public Service Commission had a conversation with the commissioners of the two Long Island municipal utilities in which he recommended that the plants be shut down and power be purchased from the private utility during the remainder of the heating season. It might be worth while at this time to consider such a situation briefly in its nation-wide municipal aspect.

While installed capacity of internal combustion engines in the entire electric power industry totaled only about 855,000 kw in 1939, compared with 11,400,000 kw hydro-electric and 28,000,000 kw steam, these engines do consume 17,400,000 forty-two gallon barrels of oil and 191,000,000 M cubic feet of gas, according to Federal Power Commission statistics. Municipal diesel-electric plants consume about 2,500,000 barrels of this fuel oil. Subtracting diesel consumption of 1,171,000 barrels for municipal plants in Florida, Louisiana, Oklahoma, Texas, Washington, Oregon, and California, the remaining municipal diesel-electric-plant consumption is around 1,400,000 barrels a year.

Cannot Convert to Coal

All these municipal diesel-electric plants could not be shut down, for in many instances there is no private utility line available. Shut-down is the correct term, because no one believes that these plants will or even can convert to steam. Such conversion would entail scrapping the engines and installing boiler plant, coal and ash-handling equipment, auxiliaries, and turbines. The cost to the town would be prohibitive, and the new equipment would hardly be made available.

Because of this it is unfortunate that an impression should have been given that there might be a conversion from oil to coal. If this oil must be thus conserved, the order should be to shut down if adequate energy can be bought from the private utility. There is no alternative.

This is what would have to be done everywhere throughout the country where such saving is ordered. Where this public and municipal sacrifice is needed to win the the war and warm the home, it will be made. It must not, however, be exploited. Progressive private utilities recognize this and will not use the occasion to put a crimp into municipal electric power. These 500 diesel plants are battle monuments which command local and fairly general respect. These plants have done much to lower rates and put a brake on holding company waste. They also render a daily local service in lowering taxes as well as electric rates and attracting industry to inexpensive electric power. If any of these plants do shut down, the local electric superintendent and his personnel should handle the distribution job until the bright first day when it will be patriotic for the diesels to hum again.

Oil Shortages Do Curtail Municipal Diesel Plants . . . If

The experience of the two New York communities, Rockville Centre and Freeport, indicates what may happen in other cities which own diesel electric plants, particularly if they are in areas where petroleum is difficult to deliver and coal or hydro-produced electricity is available from other sources. In the 17-state eastern seaboard area, a total of 60,000,000 barrels of petroleum per year must be conserved, and at present only about half actually has been saved. Government or state agents will not expedite matters by casually issuing a suggestion and expecting municipalities to take prompt action which may lead to the surrender of their hard-won and efficiently operating utility services. All too often, "emergencies" wind up as permanent policies.

In order to avoid the possibility of unnecessarily jeopardizing the existence of these plants, officials should study these basic problems:

1—The power supplied by the interconnecting utility must be dependable. This power generally is used by the water and sewerage departments as well as by domestic users. Interruptions may produce serious sanitary complications.

2—Some arrangement should be made so that the municipal service can be put into partial operation. Equipment of this nature cannot be simply abandoned temporarily. These plants can be scheduled to take the peak daily loads and thereby reduce their fuel oil consumption to about 25 to 30 per cent of normal.

3—Contracts should be arranged with the interconnecting utility that will not jeopardize the life of the municipal plant. Confusion now exists at the New York plants as to whether the arrangement is for the duration of the heating emergency (the winter months) or the duration of the war.

4—An order should be given by the Office of Petroleum Coordinator calling for the use of this interconnection. Most municipal governing bodies controlling the electric service are sworn to take actions not contrary to the fiancial best interests of their plan. Under these conditions it is doubtful whether arrangements that they would make would be legal since they would result in higher electric rates, higher operating costs, and general inefficiency of the organization. Such an order would at least give them a basis for action.

Intelligent consideration and analysis of the facts on both sides will reduce the difficulties that face municipalities in patriotically meeting this problem.

How City Planning Came to Philadelphia

A Dramatic Story of Cooperation Between Citizen Groups and City Officials

By Edmund N. Bacon
Managing Director
Philadelphia Housing Association

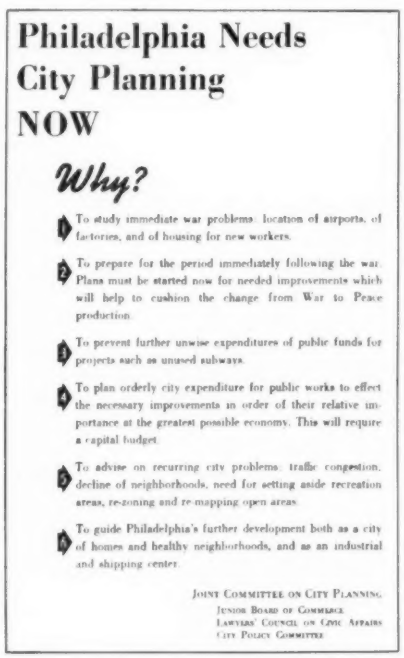
WITH the signing of the "Ordinance to Create a City Planning Commission," on December 21, 1942, Philadelphia joins the ranks of the planning municipalities. The lethargy from many years of inactivity in municipal planning has been overcome. How it happened makes a dramatic story of successful cooperation between public officials and citizens' groups.

The initial impetus came from two sources. The Philadelphia Housing Association, recognizing planning as a necessary base for any fundamental solution to the housing problem, set about to arouse citizen interest in the subject. It organized a committee which was successful in bringing the National Conference on Planning to Philadelphia for its 1941 meeting. The City Policy Committee, a group of young civic-minded technicians, joined with the Junior Board of Commerce and the Lawyers' Council on Civic Affairs to form the Joint Committee on City Planning. This Committee carried on the technical work of preparing reports and recommendations in close consultation with the Bureau of Municipal Research. In the combination of these two efforts, careful research and wide citizen contact, lay the strength of the city planning movement.

At the Philadelphia luncheon of the Planning Conference in May 1941, for the first time in Philadelphia, a representative of the Joint Committee flatly stated that the time had come to recognize the inactivity and impotency of the existing fifteen-member Planning Commission and to do something about it.

The Late Mayor Lamberton, present at the meeting, expressed his interest in the proposition and delegated to the Joint Committee the job of formulating specific proposals. This Committee went to work with a will, consulted with city officials, research agencies, and others identified with planning and after eleven weekly sessions, evolved a plan for a new Commission of nine members: one member of the Council, three department heads, and five citizen members. A report incorporating these suggestions and a draft of ordinance, was forwarded to Mayor Lamberton on August 15, 1941.

The untimely death of Mayor Lamberton delayed further official action for several months. Finally, on April 9, 1942, as a result of the efforts of the Joint Committee, the Planning Ordinance was introduced into City Council by Councilman Frederic D. Garman.



Philadelphia Needs City Planning NOW

Why?

1. To study immediate war problems: location of airports, of factories, and of housing for new workers.
2. To prepare for the period immediately following the war. Plans must be started now for needed improvements which will help to cushion the change from War to Peace production.
3. To prevent further unwise expenditures of public funds for projects such as unused subways.
4. To plan orderly city expenditure for public works to effect the necessary improvements in order of their relative importance at the greatest possible economy. This will require a capital budget.
5. To advise on recurring city problems: traffic congestion, decline of neighborhoods, need for setting aside recreation areas, re-zoning and re-mapping open areas.
6. To guide Philadelphia's further development both as a city of homes and healthy neighborhoods, and as an industrial and shipping center.

Joint Committee on City Planning
Junior Board of Commerce
Lawyers' Council on Civic Affairs
City Policy Committee

Front page of one of the Joint Committee's leaflets

Civic Groups Grow from 30 to 85

During the period of delay the Joint Committee sent copies of the report to civic organizations asking for their review of the ordinance and suggestions for improvement. Interest in the proposal increased to the point that on July 1, when the public hearing was held, representatives of 30 civic groups officially testified in favor of the ordinance in principle and submitted a few minor suggestions to the Council Planning Committee. Several Councilmen remarked that this was the most representative group of citizens that had been to City Council in many years.

Following the hearing there was a long period of inactivity in Council. Viewing the approaching deadline on the 1943 budget with concern, lest again no item for the planning staff be included, the Joint Committee called together all the interested organizations. The extensive work of the Joint Committee and the Housing Association in contacting civic groups brought results. On September 25, 50 organizations officially joined together to form the Action Committee on City Planning. This extraordinarily representative Committee, now numbering 85 member organizations, includes the major professional societies, business and labor groups, women's organizations, social agencies, and neighborhood associations from all parts of the city. It does not, however, include the Chamber of Commerce or the Real Estate Board.

The Action Committee secured an interview with Acting Mayor Bernard Samuel, who expressed himself as favorable to the proposal and asked Director of Public Works, John H. Neeson, to work out the details with the Action Committee. A conference was arranged at which complete agreement was obtained on all points and, on December 1, the final hearing was held before the Planning Committee of Council in the presence of official representatives of 60 civic groups. The amended ordinance was unanimously adopted by Council on December 10 and is now law. An item of $40,000 for the Commission's staff was recommended to Council by Mayor Samuel following the Action Committee's visit and was included in the official 1943 budget.

The initiation and much of the work of this move came from citizen groups. That is as it should be in a democracy. The city officials were consistently interested and helpful in technical suggestions. When the citizen groups were able to prove that there actually was wide and strong support for city planning, the City Council acted.

Quotable Thoughts for your Talks and Reports

Installment No. 4 of a Monthly Department of Ideas, Old and New, for Public Speakers and Report Writers.

To Plan, or Not to Plan

To plan, or not to plan; that is the question;
Whether 'tis saner in the end to figure
The ways and means whereby a country profits
In work and health and higher mode of living,
Or think it done by wishing? To grow, to fret
No more? and by haphazard growth to end
Starvation, unemployment, filthy slums
And all life's problems. 'Tis a consummation
Devoutly to be wished. To grow, to dream;
To dream, perchance to drift; ay, that's the rub,
For in that drifting growth what havoc reigns,
With no provision made for those to come
Or even those of our own age,
When there's no work, no food, no place to live.
What would the dreamer say to facts like these?
The breadline, dole, the poorhouse, or the street,
Because the dream had not foretold such woes?
When careful plans, long laid, might stop such waste
Of human lives and hearts and even souls!
To know, by computation, what should come
By natural growth in each diverging sphere,
And so prepare to meet what ills must come;
And what need not, prevent by future means
To regulate conditions that arise,
Forearmed by knowledge gained throughout the past,
No doubt would be a safer course to steer
Than heedless cruising, rudderless and blind.

PAULINE KAVANAGH DRUMM
(From THE AMERICAN CITY, April, 1935)

"

Every tyrant who has lived has believed in freedom—for himself.—ELBERT HUBBARD.

Democracy, 431 B.C.

"Our constitution does not copy the laws of other nations; we are instead a pattern to others. Our government favors the many rather than the few; this is why it is called a democracy. If we look at our laws, they afford equal justice to all in their private differences. If we look at social classes, advancement in public life depends on reputation for merit, not upon social position. Poverty does not bar the way if a man is able to serve the nation; he is not hindered by the obscurity of his condition. . . .

"Our citizens, though occupied with the pursuits of industry, are still fair judges of public matters; instead of looking on discussion as a stumbling-block in the way of action, we think discussion is absolutely necessary for any wise action at all."

PERICLES OF ATHENS

Winston Churchill on Land Monopoly

"It is quite true that the land monopoly is not the only monopoly which exists, but it is by far the greatest of monopolies—it is a perpetual monopoly, and it is the mother of all other forms of monopoly. It is quite true that unearned increments in land are not the only form of unearned or undeserved profit which individuals are able to secure; but it is the principal form of unearned increment which is derived from processes which are not merely not beneficial but which are positively detrimental to the general public. . . .

"See how all this evil process strikes at every form of industrial activity. The municipality, wishing for broader streets, better houses, more health, decent, scientifically planned towns, is made to pay, and is made to pay in exact proportion or to a very great extent in proportion as it has exerted itself in the past to make improvements. The more it has improved the town, the more it has increased the land value, and the more it will have to pay for any land it may wish to acquire. The manufacturer proposing to start a new industry, proposing to erect a great factory, offering employment to thousands of hands is made to pay such a price for his land that the purchase price hangs round the neck of his whole business, hampering his competitive power in every market, clogging him far more than any foreign tariff in his export competition, and the land values strike down through the profits of the manufacturer on to the wages of the workman.

"It is not the individual I attack, it is the system. It is not the man who is bad, it is the law which is bad. It is not the man who is blameworthy for doing what the law allows and what other men do; it is the state which would be blameworthy were it not to endeavor to reform the law and correct the practice. We do not want to punish the landlord. We want to alter the law."

WINSTON CHURCHILL
(Drury Lane Theatre, London, April 20, 1907)

Another Chance

AFTER WORLD WAR I
I can predict with absolute certainty that within another generation there will be another world war if the nations of the world do not concert the method by which to prevent it.
WOODROW WILSON
AFTER WORLD WAR II

CARTOON BY TOM LITTLE, IN THE NASHVILLE TENNESSEAN FOR DECEMBER 30, 1942

Local Government Is News-XXVI

City Hall, Strikes, and Collective Bargaining—3

By PHILLIPS BRADLEY

THE decision of the National War Labor Board, regarding the jurisdiction of states and cities to adjust disputes with their employees, raises interesting questions for City Hall. Last month in this series, the decision was interpreted as imposing an obligation on City Halls throughout the country to develop effective machinery for dealing with employee grievances. What are some of the ways in which this problem—made all the more urgent by the rising cost of living in wartime—can be met?

Legal Aspects of City Hall's Labor Relations

Before analyzing possible solutions of this problem, it may be well to recall briefly some of the legal aspects of the issue left to states and cities by the National War Labor Board's decision. In the first place, civil servants do not have the right to strike. Some effort has been made by union representatives to distinguish between the governmental and the proprietory functions of states or cities as to this right. The operation of proprietory functions, it is said, is no different from that under private management. Workers in municipally owned public utilities and other similar services—at least—should have the same rights as if they were working for a private employer.

The distinction is itself tenuous. There is an increasing tendency on the part of the courts to disregard it—or to deny its validity altogether—with respect, for instance, to tort liability. The distinction cannot be applied in the field of labor relations for the very simple reason that there is no such classification to be found in civil service laws. If these laws—or the status and rights which they confer on public employees — preclude the right to strike, they must be held to apply generally to all employees. They cannot be restricted in application merely to those classes of employees, the duties of which have been defined as governmental.

Second, civil servants have the right to organize—unless prohibited by law or administrative regulation. It has already been pointed out that they have organized widely at all levels of government, in A.F.L., C.I.O., and independent unions. This right, however, does not include the right to a recognition of the closed shop or of maintenance-of-membership. Nor has the right to organize been interpreted by administrative agencies or the higher courts to guarantee exclusive bargaining privileges to a majority union.

This abstract of the legal aspects of City Hall's labor relations is, of course, not a codex of the law as developed by civil service commissions and the courts. The recent decision of the New Jersey Civil Service Commission to dismiss the appeals for reinstatement by the Newark sanitation employees is a model statement of the principles stated above. The dismissal of the appeals was based by the Commission on the ground that there was no right to strike in the public service. The Commission's opinion should be read by everyone interested in this question.

What of the Future?

The present impasse in labor relations is public employment—an impasse created by the clash between legal principle and human interests—one which City Hall must somehow resolve. Were the three cases recently submitted to the National War Labor Board the only ones of the kind, they might be looked upon as isolated phenomena in a period of economic strain.

They are, however, symptomatic of many latent disputes over various types of grievance—from working conditions to salary scales—with which City Halls all over the country have already been faced. Demands for increases in salaries and wages to meet the rising cost of living are certain to develop in the near future in many cities.

Were demands for salary adjustments the only type of dispute which is likely to occur, they might be resolved by direct legislative action by City Hall itself. A number of salary increases have already been voted by town and city councils in many parts of the country, and more undoubtedly will be during the next few months.

More fundamental than salary questions, however, are the many day-to-day matters about which public employees as well as workers in a private plant are concerned. It is to the adjustment of these matters, often union in character but not less important to the individual employee, that many City Halls have given too little attention in the past.

A case in point will illustrate the type of question about which public employees—like any others—are concerned. The following agenda for a meeting of a Central Grievance Committee of a large city department of welfare suggests the value of adequate discussion procedures between supervisors and their rank and file.

Old Business:

1. Increments for investigators hired in the ungraded service prior to December 1938
2. Disability compensation policy
3. Sick leave policy for the new "X" Division
4. Increase in allowance for cars
5. Changes in time and leave rules
6. Appeals on Civil Service ratings
7. Anti-union activity in "X" Division
8. Five-day week
9. District Office "A" and "B" consolidation
10. District Office "Q" problem regarding car parking and assignment of car territories
11. Pay for May 31 for Sabbath observers in general fund

New Business:

1. District Office "X" — inadequate toilet facilities
2. Grievance of cashiers in stamp selling offices

If such matters are allowed to go without attention by supervisors, if employees feel that they have no recognized channels through which to express their concerns, these minor issues will too easily become "grievances." The effect on employee morale and working efficiency will inevitably be negative—to the detriment of the services City Hall is committed to render its community. If for no other reason than economy and, in human relations, there are clearly more cogent reasons, the development by every City Hall of devices to meet the legitimate interests of its workers should not be postponed. After all, is there any reason why City Hall should be a less progressive employer than one in private industry who has set up machinery for the cooperative discussion of ways to improve working conditions? Is there not some obligation on the part of our City Halls to present a model em-

ployee-relations procedure to their communities and to adopt what is today recognized as good business as well as fair practice?

Some Possible Devices

There are already many examples of collective-bargaining agreements between all levels of government (national, state, and local) and certain classes of their non-civil-service employees. The TVA is a conspicious example of effective collective-bargaining practice. In only a few cases have these agreements covered civil service groups. If legal barriers do not exist, such agreements are entirely valid. They are not, of course,, valid with respect to civil servants, in so far as such agreements cover salary and wage rates specifically fixed by law or administrative regulation. In other matters, for instance, the adjustment of grievances such as those noted above, a regularly negotiated agreement with unions within the service may prove effective.

In the absence of union organization in a government agency, an established machinery for the adjustment of grievances may be set up on the initiative of City Hall itself. Such machinery should include provision for the selection of a joint committee and a precise definition of its functions—determined by conferences between employee representatives and supervisors. This is clearly a procedure within the legal competence of every City Hall. The exact form and organization of the committee, whether, for instance, it should be on a departmental basis or city-wide, are questions which can be decided best in terms of local conditions. There is no question, however, that such initiative on the part of City Hall will do much to dispel the sense of frustration which the absence of recognized channels of employee representation inevitably creates. The working of the Whitley Council system in the British Civil Service is clear evidence on this point.

A third—and indispensable—device to meet this problem is the creation of appeals agencies within the civil service to hear employee appeals against disciplinary action. It is a labor-relations "must" of any civil-service system. Governor Edison of New Jersey, in his 1943 annual message to the legislature, advocated this procedure for that state. "I recommend the setting up of a public employees' appeal board to serve as an appellate body for state workers and a similar body or bodies to function in the same way at the local government level." That might well become a rule of conduct for every City Hall.

This device should, clearly, be established by law; if no mandatory or permissive statute is on the books, any City Hall can set up such an appeals agency within its administrative framework. Even in the absence of the other devices, it can be utilized to improve employee morale by guaranteeing objective and detached review of supervisory discipline. Here again, the exact form, organization, and powers of such an agency will depend on local conditions. Its independence of City Hall coercion must, however, be guaranteed if its value to the employee is to be safeguarded.

To sum up, it would seem wise for every City Hall to develop adequate labor-relations policies on its own initiative and before morale is dissipated by grievance over the absence of grievance machinery. The third device suggested here is a minimum requisite of adequacy. The second seems hardly less so. With these two devices in effective operation, labor relations at City Hall will no longer be a problem in administrative strategy.

Re-Time Signals for New Traffic

WASTE of time, gasoline, and rubber because of improper traffic-signal systems "represent a direct contribution to the Axis, which can no longer be condoned," Joseph B. Eastman, Director of the Office of Defense Transportation, declared January 14 at a conference of street traffic experts, called by Mr. Eastman to formulate a nation-wide program for adjusting or eliminating stop-and-go lights to meet wartime conditions in which private automobile traffic has been drastically reduced.

It seems that in many instances municipal officials have been reluctant to take out traffic lights or to make them flashing, because of public desire to leave them as they are. It is felt that this Washington stimulation will cause more cities to make the necessary changes with greater understanding on the part of the public. What can be done in this direction is exemplified by the program of Public Safety Director John B. Keenan of Newark, N. J., which now has eight schedules for traffic signal operation at 236 intersections as follows:

At 39 Intersections:	*Type Operation*
6 A.M. — 10 A.M.	regular
4 P.M. — 8 P.M.	regular
10 A.M. — 4 P.M.	flashing
8 P.M. — 6 A.M.	flashing
At 12 Intersections:	
10 A.M. — 4 P.M.	flashing
8 P.M. — 6 A.M.	off
At 36 Intersections:	
24-hour operation in downtown area	
At 14 Intersections:	
Heads taken off for discontinuance	
At 31 Intersections:	*Type Operation*
6 A.M. — 8 P.M.	regular
8 P.M. — 6 A.M.	flashing
At 6 Intersections:	
6 A.M. — 8 P.M.	regular
8 P.M. — 6 A.M.	off
At 61 Intersections:	
6 A.M. — 12 M.	regular
12 M. — 6 A.M.	flashing
At 37 Intersections:	
6 A.M. — 10 A.M.	regular
4 P.M. — 12 M.	regular
10 A.M. — 4 P.M.	flashing
12 M. — 6 A.M.	flashing

The "Have-Nots"

AMERICA and Great Britain, authors of the Atlantic Charter, are truly the Have nations. Hitler, Mussolini, and Japan are truly the Have-Nots. How?

We have free speech. They have not.

We have free thinking. They have not.

We have free teaching. They have not.

We have respect for religion. They have not.

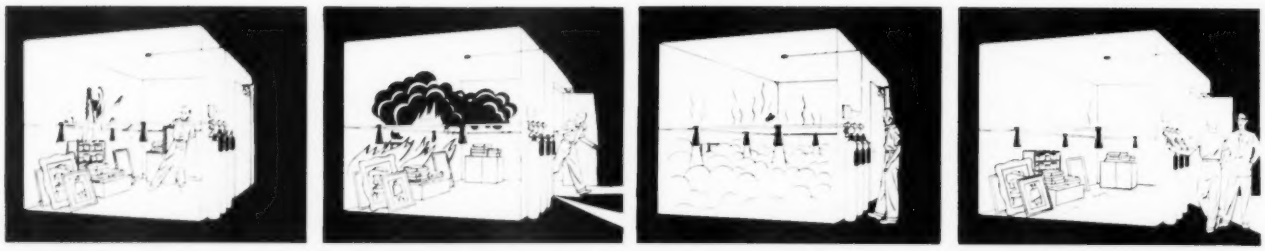
We have reverence for human dignity. They have not.

We have practices described as justice, charity, mercy. They have not; they have only the highest interests of the state.

We have the common welfare, by which we mean men, women, and children. They have not. They have only the state.

And because we, the Haves, have all these things now, today, in our actual world, we have something for which to fight, today, now, right here, without waiting for the better world and the brighter future.

—From "Topics of The Times," in *The New York Times* for October 25, 1942.



PHOTOGRAPH COURTESY OF WALTER KIDDE & COMPANY

Should Municipalities Know About CO_2 Fire Protection?

THE possible bombing of American cities has brought to the attention of municipal officials the need of safeguarding the many buildings and their contents which are maintained and used by the municipality.

Of special interest have been the museums, art galleries, places of historic value, and storage places for records of inestimable value. Many persons, including in some cases those directly in charge of these matters of general interest, have thought little of their value and paid not much attention to whether adequate protection was provided against those hazards which are normally present.

Of the hazards existing at all times, but which may be somewhat increased in these days of warfare, there is none more serious in connection with these above-mentioned properties, than that of fire. Even though normal fire-fighting procedure may prevent destruction of the buildings and their contents, there is still grave danger of ruining many articles through the use of water, which is the usual medium of fire fighting.

What is more serious than the washing down of vital statistics, with consequent pulping of the paper or running of the ink? In these days, when birth certificates and records of citizenship are of special importance to every person, can chances be taken with city, county, and state records?

Water color and pastel pictures can be ruined with water; and antique furniture, as well as many other articles in museums, may be injured almost beyond repair by the use of water.

From time to time new methods of doing things are brought into existence. Often many years of study and application are needed to perfect these new ideas, and even after they have been brought to a high state of development and their cost has been reduced to a reasonable figure, there will be other years before full realization of the value of the new method is heard by many people.

Carbon dioxide, often spoken of by its chemical symbol of CO_2 in its use as an extinguishing agent, is one of these new methods. While new in comparison with other fire-fighting material, it has been known for many years as being of value in extinguishing a fire. Its use on an ever-growing scale has also years of experience behind it, to the point that means of handling it have been perfected. Many industries are using CO_2 for special fire hazards. Its application can be by hand, with hose or small portable extinguishers, or it can be installed as a system which can be put into operation to flood a room or vault. The flexibility of its use is increasing yearly. Through the pressure of the gas, CO_2 can close doors, shut down machinery, or sound alarms, in addition to providing the necessary extinguishing medium. In connection with thermostatic systems, it can be made to operate automatically, and because of the nature of the gas it is of great value on oil and electrical fires.

The outstanding value of CO_2 in many cases is that no damage is done to materials which would otherwise be ruined if water had to be used.

Property Surveys Needed

There can be no question that those in charge of many buildings controlled by municipalities, counties, and states, and also the federal government, should undertake a survey of the property under their care, not only to determine the probability of fire, and whether added fire protection should be provided, but also to determine the possible damage and whether special forms of fire protection should not be called for.

The possible use of CO_2 is not limited to such things as museums and art galleries. Industry has proved its worth on fires in many processes. Similar application can and should be made in places controlled by the municipalities. If it has proved satisfactory in hazardous processes in privately owned airplane plants, why shouldn't it be considered in the hangars of the 1,100 municipally owned airports, where the same kind of hazards usually exist?

Electrical hazards require an extinguishing agent which does not cause short circuits and dangerous and expensive electrical damage. At 500 city diesel-electric plants there are fuel-oil tanks; in 500 steam-electric generating plants there are coal bunkers; in 1,000 city-owned generating stations there are turbines, alternators, generators, rotary converters, electric bus bays; in 2,000 city-owned distribution systems there are circuit breakers and transformers. A transformer test fire involving 3,150 gallons of transformer oil, burning for 8½ minutes, was extinguished by CO_2 in 60 seconds. The gas is effective in winds up to 30 miles per hour, and can be used in great quantities where required.

Municipal officials who would like to have sufficient information to judge the local possibilities for using a carbon-dioxide system to protect museums, historic buildings, paint shops, electrical machinery, or other hazards, should ask THE AMERICAN CITY to see that the facts are sent them. There is opportunity now to get acquainted with this system for post-war application.

About . . .

Master Meters

For Small Town Water Supplies

By HENRY W. TAYLOR

THE scope of this article is limited to the smaller municipalities whose water systems have not been equipped with many of the accessories common to the larger plants. This lack of equipment generally has arisen from the conditions under which the initial installation was constructed.

Use in New Supply

For example, a new gravity supply is installed in a municipality which has long managed without a community supply. Up to this time the use of water had been meager, due to its scarcity and the difficulty in obtaining it. The private well or spring had been used sparingly and the uses for water were confined to essential needs. The first reaction, after the new supply has been installed, is to encourage the liberal use of water in view of the new and adequate source of supply which has just been developed. This is particularly true of a gravity supply.

At first, the old habits of conserving water persist in spite of a sense of great confidence of the new supply. As this reluctance wears down, new uses for water arise, such as lawn sprinkling, car washing, industrial development, additional plumbing fixtures. Increased use, waste, and additional applications of water ultimately tax the source of supply, and suddenly a water shortage confronts the community which has considered that the water problem was solved for all time.

Increase Not Recorded

In the meantime no one has known or cared how much water was used. No master meter has recorded the gradual increased consumption, increased leakage, new connections, new industrial use, additional domestic use. The only basis of comparison between the former conditions and those suddenly developing is that formerly the reservoir was full and now it is empty.

If one checks money from the bank, without any record of the outgo, he generally finds his account embarrassingly low or overdrawn. The master meter is the check-stub forming a record of a hydraulic transaction and tells a community when it is spending more than it has, indicates the existence of waste, leakage, abnormal demands, and counsels on methods of reduction. Some of the more prosaic necessities of personal existence may well be incorporated into public planning and many of the principles of personal success apply to community well-being.

Functions

The functions of a master meter that records the total use of water to a distributing system are many and varied and worthy of consideration. A few of these functions are reviewed in the following paragraphs.

The master meter indicates how much water is used per day, month, or year, and when it is used. It indicates the rate of increase in yearly consumption and acts as a warning signal that trouble lies ahead. It indicates that either the water consumption must be reduced or that another capital expenditure must be made to increase the source of supply.

This meter, in conjunction with other data, also assists in the determination of the average yield of the watershed. It shows how much has been used and, when supplemented by a knowledge of the reserve, overflow, and evaporation, it plays its part in determining the total watershed run-off during good and bad years.

Uncovers Leakage

The records of the meter depict the variations of flow during different hours of the day and during different seasons of the year. The charts tell a story of waste and of leakage in many cases. A large leak, still undetected in frozen ground or gravelly soil, will produce an abnormal night flow. The character of the night-flow curve will also suggest the probability of a combination of many small leaks or night waste from running or leaking plumbing fixtures.

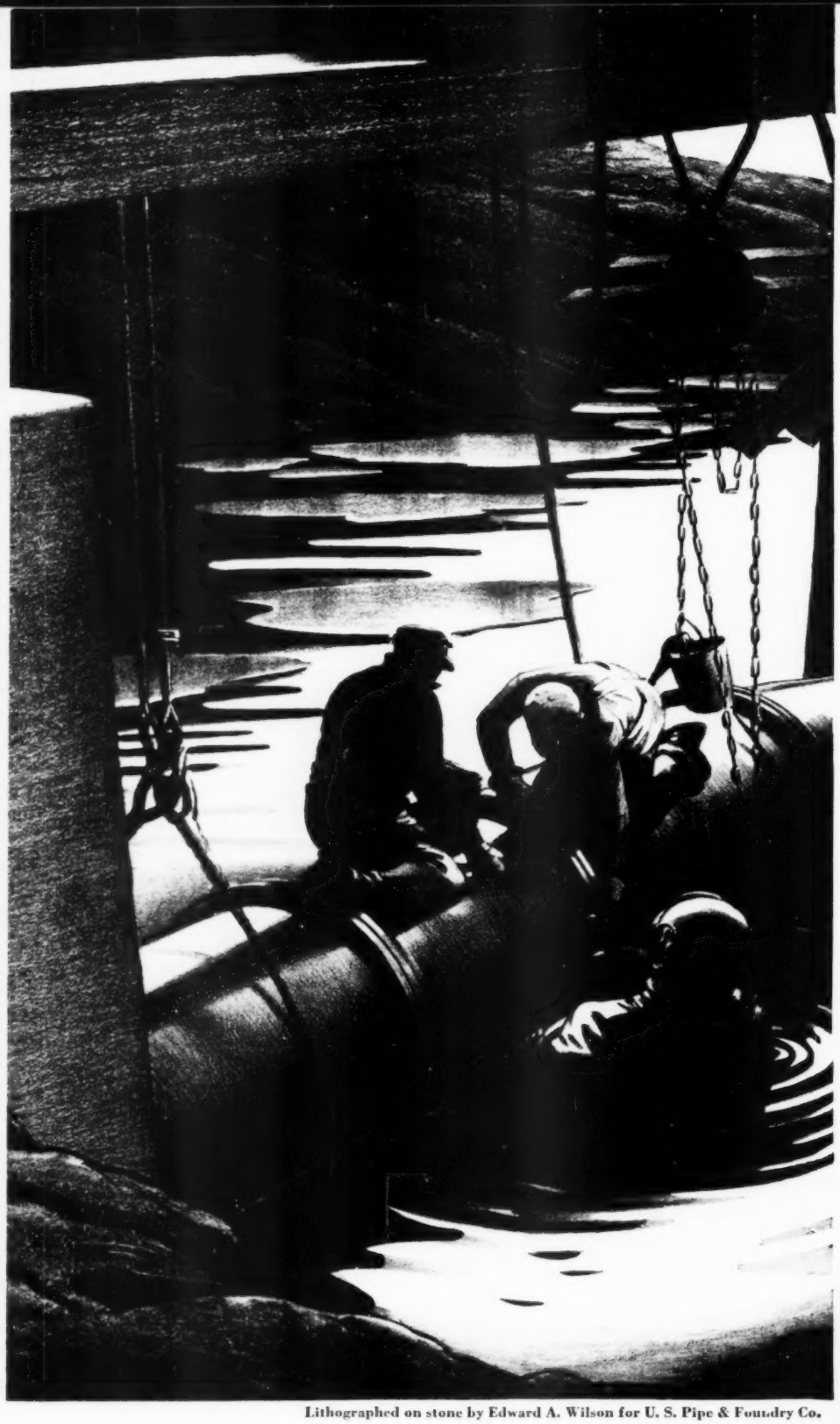
These records are invaluable to the engineer called upon to solve the water shortage problem when it arises. Without such records the problem is blind in many respects, and the same data, which possibly would have prevented the water shortage, help to solve it.

Aids in Water Treatment

If treatment of water becomes necessary, the master meter is demanded to control the application of the chemicals so that it may be proportional to the flow of water at any time of the day or night.

In many cases, a second meter on a looped system will assist in locating leakage, waste, and abnormal usage. This meter can be placed so that suitable valving will divert all water used by a half section of the community through this sub-master meter. Such an auxiliary meter will prove the existence or absence of the excess flow for which one is searching in one half of the area served. This gives valuable information in helping to isolate difficulties, and is one of the devices that can be used short of an actual hydraulic study.

NOTE.—*Next month Mr. Taylor plans to outline some of the basic principles involved in the installation and use of gas engines in sewage treatment plants.*



Lithographed on stone by Edward A. Wilson for U. S. Pipe & Foundry Co.

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BUY U. S. WAR BONDS

Cities Planning for Post-War Municipal Improvements—IV

In the November and December issues of* THE AMERICAN CITY, *brief statements as to post-war planning were published from 96 cities of over 50,000 population. Subsequently municipalities in the 25,000 to 50,000 population groups were asked regarding their post-war public works, and replies were published in the January issue. Since that issue went to press, additional cities in this population group have furnished the information published on this and following pages. Here is the wording of the five questions and a summary of the replies included in the January and February installments (the replies from the larger cities having been summarized in the December issue):

1. *"Has your city begun to plan for post-war public works or other municipal improvements to be undertaken when materials and manpower are available?"*

It is significant that as against 101 affirmative replies, only 15 cities gave a negative answer to the first question.

2. *"If so, what are the principal types of projects contemplated in these plans?*

The replies indicate that the "shelf" of post-war public works includes practically all forms of municipal improvements.

3. *"By what department of the city government are such plans being made?"*

City Plan Commission alone	1
City Plan Commission and other departments	2
Engineering Department alone	37
Engineering Department and other departments	15
Public Works Department alone	8
All departments affected	20
Water Department	1
Special Committee	2
City Council	1
City Manager	1
Legal Department	1
Zoning Commission	1
Reply left blank	12

4. *"What responsibilities and powers does your City Planning Commission have as to post-war planning?*

Advisory only	19
Mapping program and for coordination	11
Power to approve or disapprove	7
Direct responsibility	2
Citizens committee	1
Master plan in operation	1
No City Plan Commission	25
No responsibilities or powers	28
Reply left blank	7

5. *"Is your city setting aside any reserves, in war bonds or otherwise, for post-war public works?"*

Yes	28
No	65
No legal provision	7
Reply left blank	1

Bakersfield, Cal.

J. HOLFELDER, City Engineer:

2. Grade separation, storm drains, paving
3. Engineering Department
4. Planning Commission must approve all projects
5. No

Bellingham, Wash.

A. H. HOWARD, Mayor:

2. Small park improvement project; bridges; highway development program
3. Park, Bridge, and Highway Departments
4. Advisory only
5. No

Beverly, Mass.

DANIEL E. MCLEAN, Mayor:

2. Extension of existing sewerage facilities; erection of school building; extensive developments at local airport, erection of hangars, etc.; road and sidewalk building; improvement of recreational facilities
3. Engineering, Planning Board, and special committee appointed for that purpose
4. An advisory commission only
5. Attempting to build up reserves

Boise, Idaho

AUSTIN A. WALKER, Mayor:

2. Sewage-disposal plant
3. No plans being made
4. City Planning Commission not functioning
5. No legal provision

Central Falls, R. I.

RAYMOND Z. MACOMBER, City Engineer:

2. Reply left blank
3. If any later, by Engineer's Department
4. None
5. Not as yet

Clinton, Ia.

HARRY F. PANE, Mayor:

2. Reply left blank
3. Zoning Commission
4. Advisory
5. No

Elgin, Ill.

MYRON M. LEHMAN, Mayor:

2. Two bridges, including grade separation; widening and repaving one mile of street; river wall, 3,100 feet long on both sides of Fox River; additional water-treatment facilities
3. Public Works Department and Water Department
4. None
5. Yes

Elmira, N. Y.

RUSSELL GEE, City Clerk:

2. Street and sewer repairs and improvement
3. Engineering Department
4. None
5. Yes

Enid, Okla.

Office of the City Clerk:

2. Reply left blank
3. Reply left blank
4. Reply left blank
5. No

Fort Smith, Ark.

CHESTER HOLLAND, Mayor:

2. Paving streets; erection of auditorium and public buildings; completion of parks
3. Public Affairs, two Commissioners, and Mayor
4. Advisory only
5. No

Garfield, N. J.

JOSEPH J. NOVACK, City Clerk:

2. Construction of city-owned incinerator; development of playgrounds and parks
3. Department of Public Works and Engineering
4. Recommending
5. No

Highland Park, Mich.

J. H. MOORHOUSE, Superintendent, Department of Public Service:

2. Grade separations, street improvements, sewers, water system improvements, recreation, waste disposal
3. Departments of Public Service, Water, and Recreation
4. No Planning Commission
5. No

Jackson, Mich.

J. M. BIERY, City Engineer:

2. Relief sewer construction; general pavement reconstruction and re-surfacing; public buildings; fire station reconstruction, fire-alarm station; water main reinforcing; public hospital; nurses' home
3. City Engineering Department
4. Approval of and suggestions for major street extensions and widening
5. No

Kingston, N. Y.

A. F. HALLINAN, City Engineer:

2. Sewers, swimming pools, grade-crossing elimination, school gymnasium, grade school, storm drains, airport
3. Board of Public Works; Department of Engineering
4. No City Planning Commission
5. No.

La Crosse, Wis.

L. J. KAISER, Comptroller:

2. Bathing beach, branch library, auditorium and city hall, storm sewers
3. Engineering Department
4. Advisory only
5. Not yet, but there seems to be sentiment in favor of such action if income exceeds estimates

Lewiston, Maine

LUCIEN LEBEL, City Clerk:

2. Reply left blank
3. Reply left blank
4. No Planning Commission; contemplating the appointment of one
5. No

"EVERY SNOW-STORM REMINDS ME HOW LUCKY WE ARE TO HAVE MATHEWS"

It's asking a lot of a hydrant to dig it out of a snow-drift in bitter weather, to open it easily and get a full head of pressure, to turn it off completely, and know it's safe from freezing. But that's what the Mathews Hydrant was designed for. That's why it is equipped with a shield operating nut. That's why its operating threads are in a dry sealed chamber. That's why its drain valve is positive and automatic. That's why it is equipped with a loose frost protection case so that frozen ground cannot heave at its elbow or main.

Mathews Hydrants assure every protection that fire hydrants can give—and they can be renewed, repaired, or serviced with *no* digging.

MATHEWS HYDRANTS

400 CHESTNUT STREET, PHILADELPHIA, PA.

ESTABLISHED IN 1803

Made by R.D. WOOD Company

MANUFACTURERS OF SAND SPUN PIPE (CENTRIFUGALLY CAST IN SAND MOLDS) AND R. D. WOOD GATE VALVES

Lorain, Ohio

HARRY G. VAN WAGNEN, Mayor:

2. Sewage-disposal plant, incinerator, modernizing sewers and water tank; city hall; breakwater for yacht basin; erosion control; fire stations; airport; railroad crossing elimination; improved streets
3. Engineering Department
4. Cooperative
5. By law we can have no reserves but we are now accumulating a large surplus inside the ten mill limitation for the issuance of bonds

Marion, Ind.

EDWARD WERT, Mayor:

2. Water purification, extension of water mains, and possibly some street improvements
3. Water Department; Street Department
4. None, to date
5. Setting aside cash in Water Department

Marion, Ohio

R. C. SNARE, Mayor:

2. Street improvements and sewers
3. City Engineer
4. Zoning
5. No

Melrose, Mass.

CARL A. RAYMOND, Mayor:

2. Not yet formulated
3. By Planning Department in cooperation with several other departments
4. To investigate and recommend
5. No

Meridian, Miss.

JOHN C. WATTS, City Engineer:

2. None
3. None
4. None
5. No

New London, Conn.

KENNETH H. HOLMES, City Engineer:

2. New police station
3. Public Works Department
4. Planning Board has no power except in platting of lands and layout of streets
5. No, not yet

Newport, Ky.

J. R. KINSELLA, City Engineer:

2. Highways, streets, sewers (storm, sanitary, combined), bridges, recreation facilities, water-works improvements. Planting and beautification, following the construction of flood protection works
3. Engineering Department
4. No Planning Commission
5. No. Cost of work to be paid by direct assessment, bond issue or, in some cases, from current revenues

Norristown, Pa.

M. P. BOWEN, Secretary:

2. None
3. None
4. None
5. No

Owensboro, Ky.

J. C. KEELEY, City Engineer:

2. Street construction; sewer construction; swimming pool; municipal auditorium
3. City Engineering Department
4. Reply left blank
5. No

Parkersburg, W. Va.

EARL STEPHENS, Mayor:

2. Street paving, sewer and water extensions, incinerator, flood wall, sewage-disposal plant, park development, auditorium
3. City Engineer's Office
4. To prepare plans and specifications for immediate use, when proper time arrives
5. No. Reducing present bonded debt as fast as possible

Pensacola, Fla.

GEORGE J. ROARK, City Manager:

2. Complete city plan, including zoning, streets, community center, stadium, public utilities, and recreation facilities
3. Executive and technical staffs as well as a citizens' planning group
4. Full charter authority
5. Yes. Have an unused bonding capacity of about $2,000,000 caused by retirement of outstanding bonded indebtedness during past 10 years

Richmond, Ind.

JOHN R. BRITTEN, Mayor:

2. Reply left blank
3. Reply left blank
4. None
5. No

In the November and December 1942 issues, THE AMERICAN CITY published the replies to these same five questions from cities of over 50,000 population. Since that time, two more cities in that population group have submitted to us the following answers:

New Haven, Conn.

MAYNARD MEYER, City Plan Engineer:

1. Yes
2. Re-design and re-building of downtown area under a Master Plan; Capital Budget program
3. City planning commission
4. Direct responsibility
5. No. Bill requesting enabling legislation being prepared

Wilmington, Del.

E. W. BARTRAM, Secretary to Mayor:

1. Yes
2. Paving; sewers, playground and park improvement
3. Street and Sewer Department and Superintendent of Parks
4. Recommending
5. No

Riverside, Cal.

WALTER C. DAVISON, Mayor:

2. Streets, storm sewers, sewage-treatment plant, improvement of parks
3. Engineering Department
4. None
5. Yes

Rocky Mount, N. C.

L. B. AYCOCK, City Manager:

2. Street paving program to eliminate dirt streets in the city; enlarge drainage system and power plant capacity
3. City Engineer's staff
4. Limited by the state laws which control the expenditures of public funds
5. Bill pending in state legislature for this purpose

Rome, N. Y.

GYLE STILLMAN, City Engineer:

2. Reply left blank
3. Reply left blank
4. Mapping program
5. No

San Angelo, Texas

SAM O. LAWHON, City Manager:

2. Sewers; install jail in City Hall; erect administration building and municipal airport; street paving
3. City Manager, City Engineer, and City Commission
4. No City Planning Commission
5. Yes. $12,000 street and bridge; $15,000 paving funds; $26,000 in War Bonds

Sioux Falls, S. D.

C. M. WHITFIELD, Mayor:

2. Street paving
3. City Engineers' Department
4. None
5. No

South Gate, Cal.

F. W. BUNNETT, Mayor:

2. Streets, sidewalks, extension of water system, swiming pool
3. Engineering Department
4. None
5. Have created a "Public Improvements Fund"

Superior, Wis.

O. G. HOLWAY, Director of Public Works:

2. Paving, storm sewers, curbs, and gutters
3. Department of Public Works
4. Advisory only
5. Paving up bonded indebtedness to be in better shape to handle post-war construction

Tucson, Ariz.

PHIL J. MARTIN, JR., Acting City Manager:

2. Paving, water works, sewer extension, public parks
3. City Engineer's Department
4. Zoning of areas for public use
5. No legal provision in city charter

Tyler, Texas

WALTER H. KNIGHT, Mayor:

2. Water-works improvement and fire station
3. Reply left blank
4. Reply left blank
5. Yes

University City, Mo.

WALTER HEIMBUECHER, City Engineer:

2. Rubbish incinerator plant and sewers
3. Engineering Department
4. Advisory
5. No

Wausau, Wis.

HERBERT GIESE, Mayor:

2. Municipal Building, to centralize various city departments; bridge; schools; storm sewers
3. Engineering Department, with aid of the State Planning Board
4. None yet, but hope to have the Planning Commission embodied in a special committee which will carry out the overall post-war planning.
5. Not yet. We have at present practically wiped out our temporary borrowing

Waterloo, Ia.

RALPH B. SLIPPEY, Mayor:

2. Airport; storm sewers; city hall; addition to sewage-disposal plant
3. City Engineer's office
4. None
5. No

West Palm Beach, Fla.

FRANCIS B. MCGARRY, City Manager:

2. Sewage-disposal plant; public buildings; extension of sewers; better type of main highways; renewals of electric cable; street resurfacing; extension of Lake Side Drive
3. City Manager and City Engineer
4. Advisory with power to recommend to City Commission
5. No. No authorization

Wichita Falls, Texas

J. A. GIDDINGS, JR., City Manager:

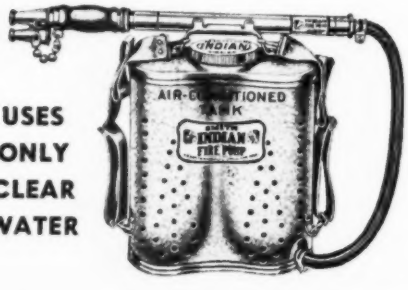
2. Water supply, sewers, streets, sidewalks, parks, central garage, and stores
3. All departments will participate
4. No City Planning Commisison
5. No. Will be put into effect next fiscal year

INDIAN

FIRE PUMPS

Soldiers Stop Fires FAST With These Famous Extinguishers

War has multiplied the city's fire fighting problems. **INDIAN FIRE PUMPS** are your best solution. The Army and Navy both use **INDIANS** for fires in and about government areas. Easy pumping throws powerful, pressure stream or nozzle adjusts for spray. Just the thing for incendiary bomb control. Carry by handle or slung on the back, allowing operator to move about quickly without having to stop to pick up extinguisher.



USES ONLY CLEAR WATER

UNCLE SAM'S FAVORITE FIRE FIGHTER

The U. S. Forest Service and Fire Departments use and endorse INDIANS. Rust-proof tanks may be kept filled constantly ready for instant use. No inspection necessary. Send for catalog and testimonials. Every fire helps the enemy.

BE PREPARED!

D. B. SMITH & CO., 421 Main St., UTICA, N. Y.

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HERCULES EQUIPMENT & RUBBER CO.

435 Brannan St., San Francisco, Calif.

Pigs, Rabbits, Poultry, and Zoning Ordinances

TO THE Editor of THE AMERICAN CITY:

The question has been raised whether ordinance against poultry, pigs, and small animals should be lifted in urban and suburban areas in the interest of the National Food Program. My personal opinion is that this should be left up to the individual communities.

There certainly should be no objection to vegetable gardens.* At present these afford both a patriotic and a practical incentive. The matter of raising poultry or small animals, however, is a good deal more ticklish; and raising pigs in any large, inhabited community is definitely undesirable.

Personally I would not like to see doing away with any zoning ordinances which protect health. In neighborhoods which have sufficient ground, and where the space between homes is big enough, the average neighbor would probably not object to a wartime hen house or rabbit hutch. It is preferable in such cases, however, to have the community agree to lifting the zoning ordinance temporarily as a wartime measure than to encourage anyone to violate the ordinance. It would be unwise to take any steps that might cause or increase neighborhood quarrels. Unity is needed in the neighborhood and community as well as in the nation as a whole.

The usual reason for zoning ordinances with regard to chickens is that some people object to the disturbance that comes from the cockerel's crowing. It is now possible to buy pullets, separated from cockerels, from hatcheries dealing in sexed chicks and pullets which do not have crowing tendencies. Zoning ordinances could be modified accordingly.

When it comes to raising pigs, however, numerous questions will arise. One of the important ones is feed. So long as we have feed enough, I believe that our commercial hog farmers will be able to produce any increase necessary. Promiscuous pig raising by urban people not familiar with the business would carry with it the possibility of hog epidemics. It might also offer human health hazards. Hog production is a commercial enterprise and can best be done on farms equipped for this purpose.

There is, however, the possibility of encouraging conservation movements whereby communities would stress the saving of garbage. Such projects have gained wide popularity in wartime Britain. There the conservation of all food particles has become a necessity. Such projects permit a family that cooperates to earn an allotment in a pig. The actual pig-raising is, however, done on farms equipped for that purpose. I am merely suggesting this as an alternative to raising pigs in settled communities. Different communities would want to handle this kind of a project differently.

M. L. WILSON,
Director of Extension Work,
U. S. Department of Agriculture.

* EDITORIAL NOTE.—See Dr. Wilson's article on "Victory Gardens in Cities and Suburban Areas," in the January issue of THE AMERICAN CITY, pages 66-68. This magazine invites letters from municipal officials and planning commissions as to how far cities and suburbs are going, or should go, in permitting poultry or small-stock raising in residence districts as a wartime measure.

WPB Consults Group of Mayors

AT THE invitation of War Production Board Chairman Donald M. Nelson and Vice-Chairman Ferdinand Eberstadt, a group of mayors and city managers met in Washington on January 23 to discuss problems of municipalities in maintaining essential facilities and services in wartime. Mayor F. H. LaGuardia of New York City headed the delegation.

The mayors requested that a single headquarters be maintained by the War Production Board to serve as a liaison agency and clearing house through which municipal governments could conduct their day-to-day transactions with the various war agencies in Washington.

They pointed out that at the present time municipalities must deal with a considerable number of agencies handling such problems as water supply, fuel oil rationing, food, rubber, vehicles, etc. While recognizing that these problems are handled by several federal agencies, the mayors urged consideration of the possibility that a central clearing house be established for their convenience through which they could have a single contact with all agencies.

Mr. Nelson, Mr. Eberstadt, and Maury Maverick, Director of the War Production Board Governmental Division, represented the War Production Board at the conference. Others present in addition to Mayor LaGuardia were Mayor Edward J. Kelly of Chicago; Mayor Fletcher Bowron of Los Angeles; Mayor W. Cooper Green of Birmingham; City Manager Charles B. Borland of Norfolk; Superintendent of Supplies Francis Lang, representing the Mayor of Boston; L. J. Cook, director of Purchases, New York City; Albert Pleydell, Commissioner of Purchases, New York City; and Harry R. Betters, Acting Executive Director of the United States Conference of Mayors, Washington, D. C.

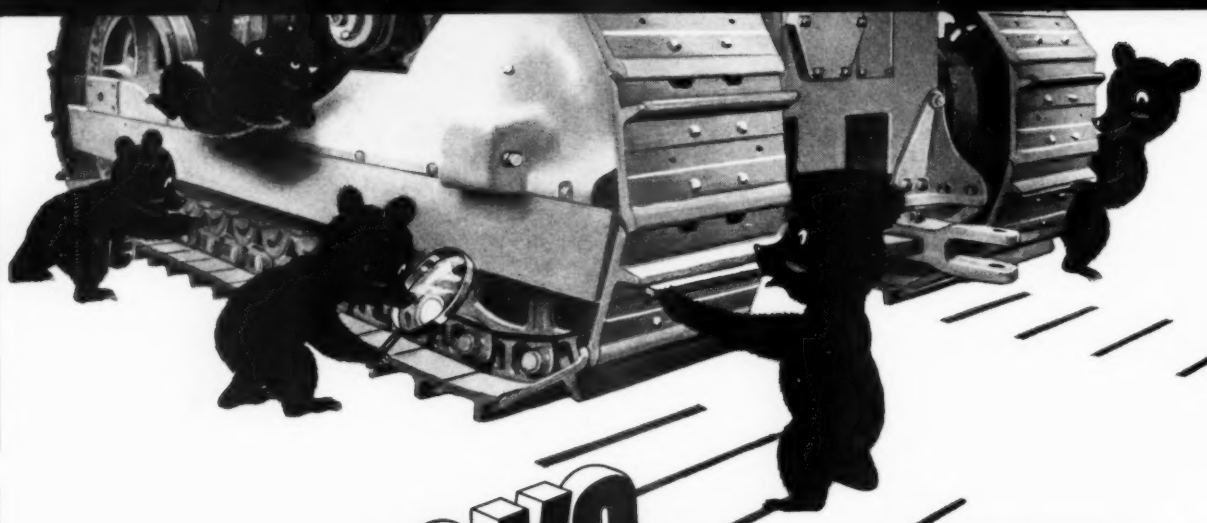
H. C. ROGERS DIES, EDDY VALVE EXECUTIVE

HOWARD C. ROGERS, vice-president of the Eddy Valve Co., Waterford, N. Y., died at the age of 81 on December 19 after an illness of six months. Mr. Rogers came to the Eddy Valve Co. in 1879. In 1888 he was elected vice-president of the company, which position he held for over fifty years.

H. C. Rogers

Along with his active industrial career, Mr. Rogers found time to take a vigorous and important part in many important civic enterprises. He served on the Lansingburg School Board for over 35 years, and was president of the Board for 22 years. He served as a member of the Board of Directors of the Leonard Hospital and was also a member of the Board of Trustees for the First Baptist Church of Troy.

Mr. Rogers is survived by two daughters, three sons, and seven grandchildren. He will be greatly missed in the community in which he lived.



TRACKS—

BEAR THEM IN MIND

Cutting off a worn sprocket rim with acetylene torch

YOUR "Caterpillar" track-type Tractor gets much of its pulling power from the tracks on which it runs.

So in these days when every ounce of machine power counts for victory, you'll want to give special care and attention to tracks. There are many things you can do to prolong track life. Here are some:

1. Keep the rollers, idlers and diagonal brace bearings lubricated. This should be done more frequently if your tractor operates in mud or water.
2. Keep the track tension correct, and the front idlers in alignment, so that wear will be evenly distributed.
3. Don't abuse the machine. A "Caterpillar" track-type Tractor is built to take a lot of punishment, but it will run longer and more efficiently if you avoid undue shocks and overloading.
4. Go over the nuts and bolts periodically to be sure they're tight. Look — and listen — for signs of wear.

When tracks are worn to the point of needing repair, your "Caterpillar" dealer's excellent service facilities are available night and day, ready to:

1. Turn track pins and bushings. In some cases this will actually double track life.
2. Cut off worn sprocket rims and weld on new rims.
3. Build up the rail side of worn track links.
4. Build up worn rollers by welding.
5. Weld new grousers on track shoes.
6. Switch rollers, especially if your equipment puts extra load on the front, rear or one side of the tractor.

All these types of track service save metal—vital in today's war effort. Your "Caterpillar" dealer is pledged to keep your "Caterpillar" equipment working with the least possible expenditure of war-needed materials. Call on him for counsel, service and repairs, and ask him for a copy of the useful new booklet, "Keep 'em Working."

Building up track shoes with new grousers

CATERPILLAR

REG. U.S. PAT. OFF.

DIESEL

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

TO WIN THE WAR: WORK—FIGHT—BUY WAR SAVINGS BONDS

Traffic Control and Facilitation

Conducted by Traffic Control & Facilitation Committee, Institute of Traffic Engineers, 60 John St., New York

Merwyn A. Kraft, Chairman; Virden A. Rittgers, Vice-Chairman; David M. Baldwin, Martin E. Bruening, Stephen Butterfield, Edgar F. Copell, John E. Ecker, Fred W. Fisch, Emmett E. Kirwan, Foster M. Kunz, Alger F. Malo, Walter W. Matthews, John R. Moriarty, Henry W. Osborne, I. S. Shattuck, Matthew C. Stelski, Richard Siver, John L. Towers

Making Transit Equipment Sweat

By **G. M. Woods**
Transportation Engineer
Westinghouse Electric & Mfg. Co.
East Pittsburgh, Pa.

THIS war is primarily a war of production of materials and transportation of men and materials to the scenes of fighting—also workers between their homes and the war plants. Failure by transit operators would mean fewer guns, shells, mines, tanks, ships, planes.

While everyone knew that increased industrial activity due to the war would increase employment and payrolls, few foresaw the cutting of oil and gasoline supplies to the Atlantic Seaboard by submarine activity. And who foresaw the shutting off of our crude rubber?

The result has been an unprecedented increase in passenger traffic, smallest in the larger cities where traffic and parking difficulties constricted the use of private automobiles by workers. Had the city transit systems a large amount of suitable new equipment available, the situation would not be so acute. But the transit industry endured many years of deepest depression, and even in 1940 gross revenue was still a little under 1931. Vehicle purchases were high in 1939, 1940, and 1941, but street-cars, which are superior for mass transportation, were in the minority. Also half of the large number of buses purchased had a seating capacity of less than 35.

The industry finds itself in the position of having provided the means of "riding on rubber" to many who had become prejudiced against antiquated street-cars, when the prospects of continued rubber supply are dark and when masses are clamoring for transportation in almost any kind of vehicle.

Scheduling and Rehabilitation of Cars

One obvious practice which is helpful is to lengthen the useful life of some of the 28,000,000 private automobiles by "group riding" and other schemes to increase the average load of private automobiles above the present value of less than two passengers. All these schemes for increasing automobile life will fall far short of their mark unless they are protected against poor driving practices and extended week-end trips by "war-workers." It doesn't do much good to save 40 or 50 miles during the working days only to drive 150 on Sunday.

The transit industry with existing equipment must carry passengers at the rate of 22 billion per year. The problem is being attacked with vigor. Some of the steps are rehabilitating retired cars, purchasing second-hand cars previously released from abandoned routes, restoring street-car service where tracks exist, improving scheduling and, in extreme need, purchasing of new cars. Other equally important steps rest with the communities themselves: staggering hours, reducing number of stops, and giving mass-transportation vehicles preference in traffic regulation. Whatever is done to facilitate the carrying of passengers on street-cars and buses avoids congestion and assists in the movement of private automobiles.

The first step is to make suitable for operation all street-cars available on the particular property. All electrical and air-brake equipment, trucks, doors, and other apparatus must be thoroughly overhauled. Thorough cleaning of the interior would be appreciated by the passengers. Philadelphia has done this. Boston Elevated has reconditioned 59 rapid-transit and 70 surface cars. The Baltimore Transit Co., with 1942 revenues running 50 per cent above 1941, has reconditioned many of its retired cars at $100 to $1,000 per car.

Second-Hand Cars to War Centers

One saving feature has been the retired street-cars in the hands of second-hand dealers or on the transit properties. Ninety old elevated cars from New York were sent to Oakland, Cal., to haul shipyard workers; 56 were taken over by the War Department for the Illinois Terminal Railroad to haul war workers between Springfield and Decatur and a new ordinance plant. In all, 359 second-hand elevated cars are being returned to service.

San Diego is using 20 cars purchased second hand on a restored rail line for the exclusive use of employees of an aircraft plant. A total of 61 second-hand cars have been purchased by the San Diego Electric Railway. The Georgia Power Co. has rebuilt 18 retired cars and is reconditioning 23 cars purchased second hand, at from $2,000 to $3,500 per car.

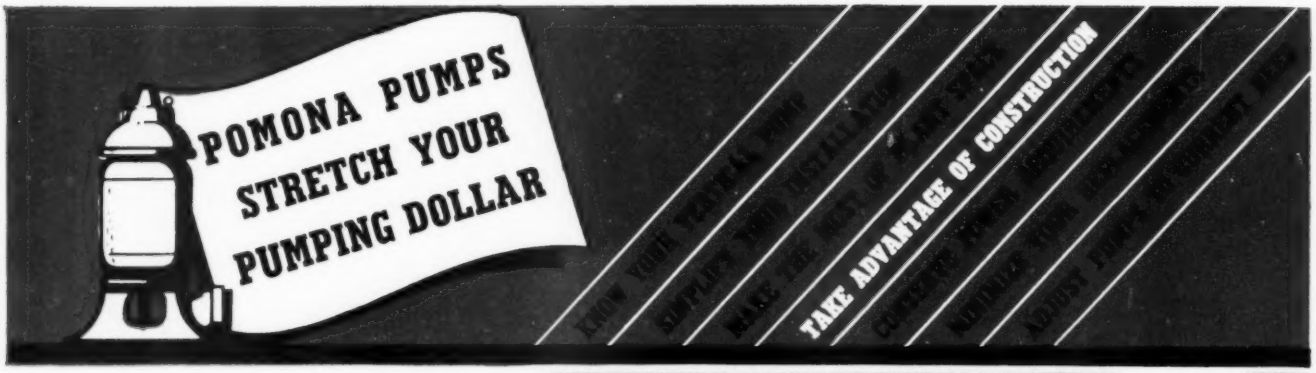
Abandoned rail routes where tracks and pole lines were still available have been changed back to car operation, freeing buses for added service. Providence restored car service on three routes. Portland, Oregon, restored street-car service to a route where the car tracks had previously been covered with "black-top."

"The Public Be Moved"

Limitations on number of standees have been removed. More cars will have to be short-routed and, as a result, service to the outlying sections of lines will be greatly curtailed. Already the furnishing of both car and bus service on certain routes has been stopped and the buses used for new routes.

Last June the War Production Board approved the completion of cars on order for Philadelphia, Washington, Los Angeles, Toronto, Montreal, and Vancouver. It is established that a property which is not using its existing equipment to the best advantage will not have ODT help in obtaining new equipment. However, when all steps within the power of the property have been taken and the facilities are still inadequate, it is believed that a complete, forceful presentation of the case will not be unheeded.

Reduction in stops from eight per mile to six increases schedule speed 15 per cent. Bus stopping points in New York City have been reduced from one every two blocks to one every four blocks. In Louisville, Youngstown,

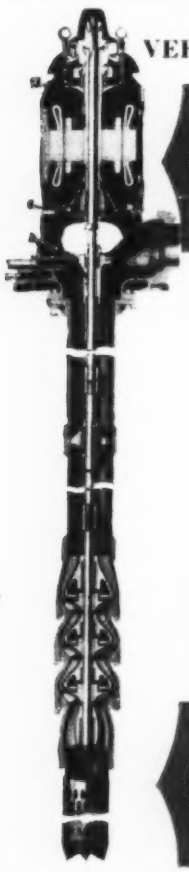


ARE YOU TAKING *FULL* ADVANTAGE OF POMONA'S MANY CONSTRUCTION FEATURES?

Pomona owners are doubly fortunate in these times because no other type pump can match Pomonas for high efficiency . . . for adaptability to varying job requirements . . . for low maintenance and operating costs . . . and for all-around ability to handle virtually *any* pumping application encountered.

Among the *many* construction features that make Pomonas so uniformly efficient under a wide variety of operating conditions, the following are typical . . .

VERTICAL DESIGN

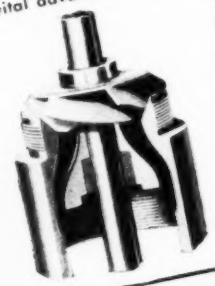


Because Pomonas are *vertical* pumps they require a minimum of floor space . . . in fact, can be mounted directly *over* tanks, vats, or sumps. No costly foundations are needed, no need to disturb existing plant installations. In addition, they require no priming to start, so may be located in out-of-the-way places unsuited to other equipment or can be operated by remote control. ***No other pump is so easy to move from one job to another. No other pump operates with so little attention!***

Let your nearby Pomona dealer check over your installation and suggest ways you can make greater use of the many advanced construction features incorporated in your Pomona pump!

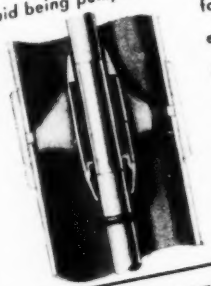
SEMI-OPEN IMPELLERS

Pomona's Semi-Open Impellers and Bulbous Vaned Pump Bowls represent a vital advancement in both design and performance. Pomona impeller clearance can be adjusted quickly and easily at the pump head, permitting pump capacity to be varied up to 60% of design point without costly throttling. Semi-open impellers will also handle gritty, pulpy or fluctuating flows more efficiently, and greatly minimize risk of vapor, gas or air locking. **Thus, Pomonas can be quickly adapted to a wide range of pumping requirements and fluids with uniformly high operating efficiency!**



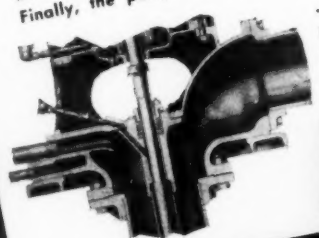
WATER LUBRICATION

In Pomonas, ALL bearings below the motor head are self-lubricated by the fluid being pumped. There are no oil tubes or grease chambers to leak, therefore no risk of contaminating either product or equipment. Also, because lubrication is foolproof, positive, Pomonas take care of themselves without need for frequent attention. **You can use your Pomona for practically any pumping job in your plant with perfect safety to the pump and to the product!**



OPEN DRIVE SHAFT

Pomona impellers are driven by an open drive shaft which eliminates the buying, installing and servicing of a separate housing when conversions are made. Because there are no oil tubes or grease chambers, Pomonas handle fluids under a wide range of temperatures, further increasing their versatility. Finally, the pump can be lengthened or shortened by simply adding or removing standard length shaft sections . . . can be converted from deepwell primary water supply to close-coupled industrial pumping—or vice versa—at minimum cost. **Pomona's need never be idle!**



POMONA
Water-Lubricated
PUMPS

POMONA PUMP CO., [illegible] Plants located at [illegible] Missouri, and [illegible]

DIVISION OF JOSHUA HENDY IRON WORKS

Indianapolis, and St. Loius substantial reductions in the number of stops have been made. Norfolk has reduced stopping points 54 per cent.

Traffic Regulation

In some instances traffic signals at unimportant intersections are controlled by approaching cars so that they always get a green light. This system may well be extended. In other cases, traffic signals have been discontinued. Traffic officers recognize that the movement of 50 passengers in a bus or car is more important than that of two in a private automobile, and official recognition of the fact would be of further assistance.

Staggered Hours Offer Most Effective Aid

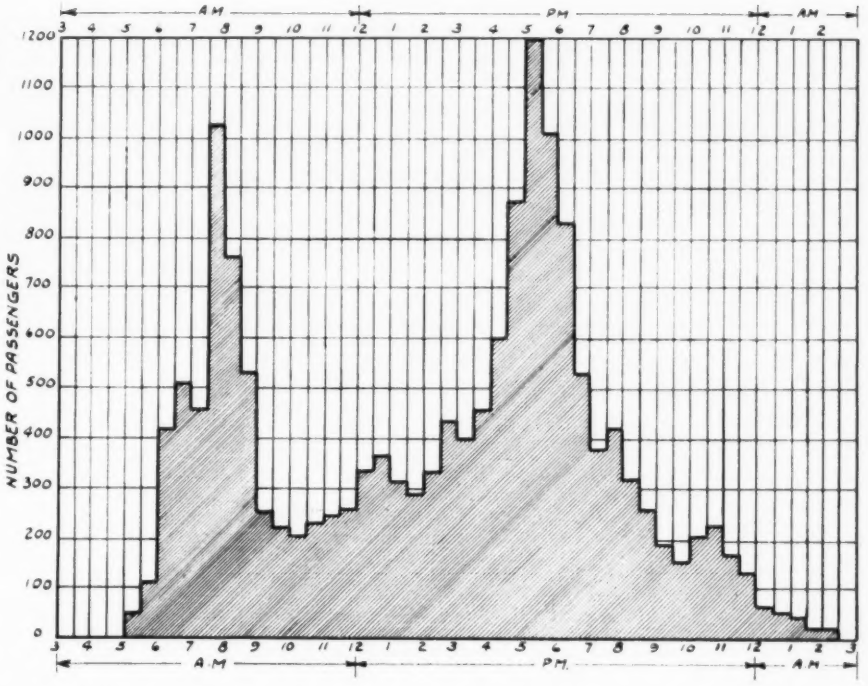
Of all methods, the most effective is staggered hours—but the most difficult to apply correctly. Half the transit passengers in most cities are carried during only four or five hours of the day. An increase of 50 per cent in capacity should be obtained by a reasonable degree of staggering hours. Unfortunately, all applications of the staggered-hour plan have not been worked out thoroughly, and in some instances the peak actually increased. In other cases department stores, for example, would agree to certain hours and then one or more stores would back-slide. Purely voluntarily action may not be enough.

As to procedure, the Institute of Traffic Engineers has reprinted "War Production Transport" from *Traffic Engineering* of April 1942. Part I of this pamphlet tells Why and How to Stagger Hours. It contains an outline of procedure for the correct staggering of hours under varied conditions. The Chamber of Commerce of the United States has issued two pamphlets on "Staggered Hours." The American Transit Association has published the procedure and the results of comprehensive studies of staggered hours in Bridgeport, Conn., and in Philadelphia. It is not enough to set different hours for various industries and businesses and to trust to results. Each route must be studied. For example, two large establishments of different character may be located on the same route at such distance apart that the different hours selected for each would cause the two loads to coincide.

There are numerous examples of industries located in outlying sections with residential areas between them and the central business district. Hours should be so arranged that there is not a heavy demand for vehicles at the industrial plants at the same time there is a peak demand in the business district.

The large isolated plant presents still another problem. Daily, empty cars or buses may be seen returning from carrying men to work and going to carry them home. If hours of changing shifts were spaced some 15 minutes apart over an hour or more, these vehicles, except first and last periods, would be loaded in both directions.

There has never been any question as to the fundamental economy of mass transportation compared with private transportation. Economy never governed, and the mass-transportation facilities and capacity waned as a result of direct competition with private automobiles. Now we have a problem which only pioneering thinking, trial and error, and hard work can lick.



Number of passengers carried on a typical week-day by 30-minute intervals.

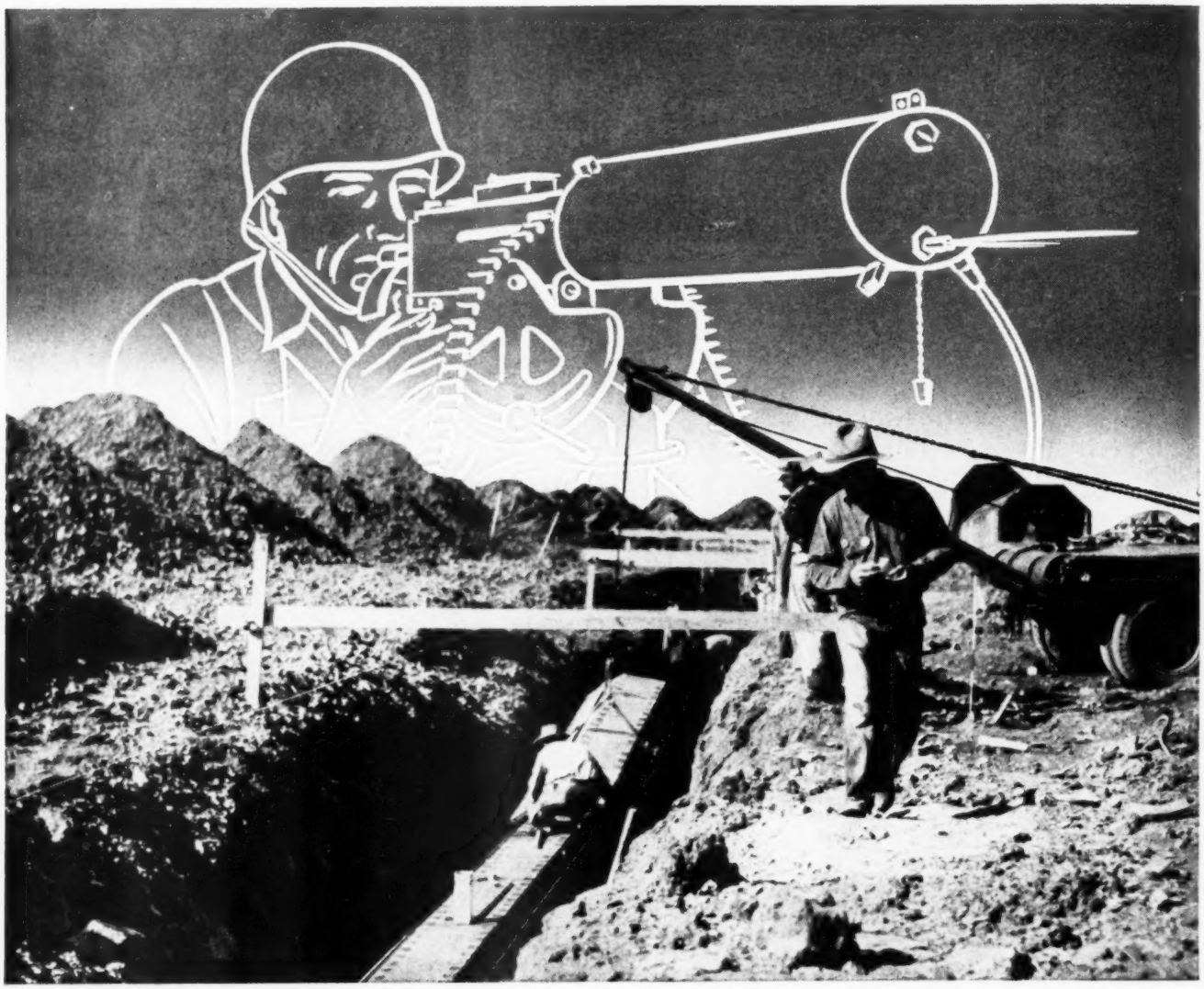
Getting Group Riding in West Allis, Wis.

By C. L. BARTMAN
Administrator, War Transportation
West Allis

BOTH group-riding and staggered-hour plans have had to be custom built to suit the community. In West Allis, Wis., for instance, we have endeavored to coordinate group riding so that workers residing in the same suburb or outlying town ride together whether or not they work at the same plant.

Study of data furnished by coordinators in 35 local plants showed us where the workers lived—some of them 50 to 60 miles away and coming in by automobiles. A map of the county was spotted with the numbers of all the workers, and an index shows the plant and department each works in and the time he starts for work. With this basic information, the men who live in West Bend, Watertown, Hartford, Burlington, Whitewater, Racine, or Cudahy can be brought together for group riding even though they do not work in the same plant. The average riders per car increased from 1.3 to 2.3.

Driving to work in the same automobile with three or four other people was considered scarcely respectable in the days before the war. It seemed too much like bumming a ride. Now, the Office of Defense Transportation is vigorously urging the adoption of this practice to save tire mileage. Moreover, the Office of Price Administration



THIS STORM SEWER is fighting on two fronts

This and other storm sewers are doing an important job at home without the use of critical materials — thanks to ARMCO Emergency Wood Pipe. The metal it releases may even now be helping to save lives and shorten the war on a distant fighting front.

Yes, essential wartime drainage can be taken care of economically, efficiently and *patriotically*. The new design of ARMCO Emergency Pipe requires no steel sheets and bands, wire mesh, metal reinforcing or other critical material. Skilled labor is not needed. The pipe is easy to handle and install. Also important now, ARMCO Pipe is light in weight and nestable, which often means up to 80 per cent savings in transportation.

Remember that ARMCO Corrugated Metal Pipe is only on temporary "leave of absence." It will be back after the war with its flexible strength, long lengths, tight joints and low installation costs. Meanwhile, steel must not be used in any drainage structure unless engineering integrity demands it. For most of those wartime "must" jobs you'll find a highly practicable substitute in ARMCO Emergency Wood Pipe. Write us today for complete information. Address: ARMCO Drainage Products Association, 75 Curtis Street, Middletown, Ohio, U. S. A.

ARMCO ARMCO **EMERGENCY PIPE**

permits the ordinary motorist to have an extra allowance of gasoline only if he belongs to a ride-sharing club or has made a sincere effort to join such a club. As a consequence, more and more people are going in for group riding.

Encouragement of group riding by ODT and OPA is theoretically confined to situations where workers have no convenient public transportation service available. As a practical matter, however, it is very difficult to define "convenient," and there is no doubt that many group riding clubs are being organized in places where workers could, in reality, use public transportation without undue hardship.

If this were happening in normal times, it might seriously injure the transit industry by diverting a substantial part of the traffic to private automobiles. Today, however, the situation is different. The volume of transit riding has already grown to such enormous proportions that the transport company faces a real problem in handling the increased traffic with its present equipment. Thus, the development of group riding in private automobiles is regarded as helpful rather than harmful to the transportation companies. The extent to which group riding can be developed has yet to be seen.

Fire Chiefs Sign Truck Pledge

MORE than 2,300 fire-department drivers, mechanics, and chiefs in 118 United States cities have signed the conservation "pledge" to abstain from truck driving which is liable to result in accidental damage, excessive tire wear, or gasoline waste, and to practice the best maintenance in order to avoid premature mechanical failures. Here's how the plan works:

The truck owner signs the pledge and presents it at any official U. S. Truck Conservation Corps Station. These stations are designated by red, white, and blue "Official Station" posters and include the establishments of truck manufacturers and dealers, tire dealers, oil companies, and service stations. The truck owner is given an emblem for each of his trucks.

The emblem is merely the symbol of the truck owner's moral responsibility to prolong the life of every vehicle under his control by following certain specific procedures of modern automotive practice.

Cities are also recognizing driver responsibility by conducting in service courses for instructors of municipal motor-vehicle operators.

Taxi Law for Passengers Too

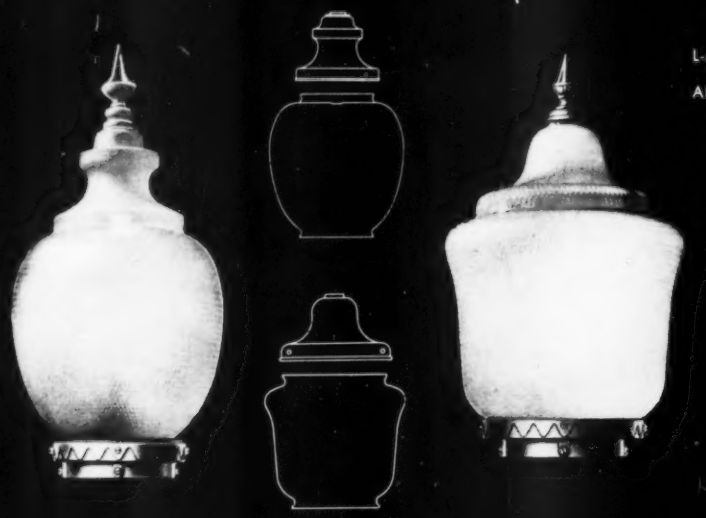
TAXI passengers as well as their drivers must watch their ethics under an ordinance just passed by the Walla Walla, Wash., city council, according to the American Municipal Association. The law forbids drivers to take passengers "the long way," under penalty of a $100 fine. Passengers, on the other hand, cannot refuse payment of legal fares, and if a prospective customer cancels his call after the cab is dispatched, he is charged a fee anyway. The new ordinance establishes 25 cents for the first half-mile and 10 cents for each half mile thereafter; 10 cents for keeping a driver waiting three minutes; and 10 cents apiece for extra passengers. Cabs from now on will be rationed in Walla Walla, one to every 2,000 inhabitants.

Fall Class of 1942 Northwestern University Traffic Institute

This class consists of 20 police officers. Except for the three felt hats, there is quite a similarity in the style of uniforms, though the officers are from 11 different municipal police departments, six state departments, and the Republic of Panama. In detail they are:

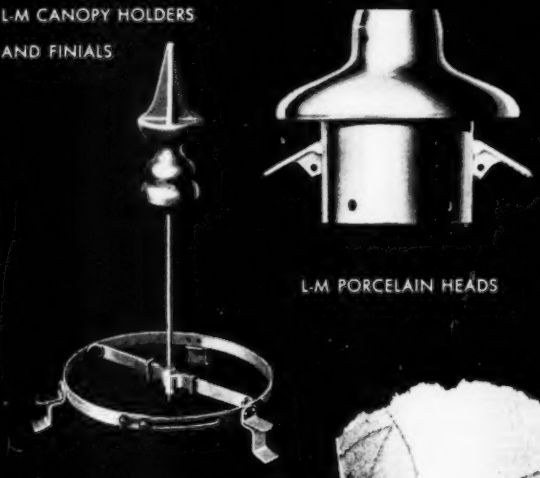
Front row, left to right: Lieut. Julio I. Rovi, Republic of Panama; Patrolman George Paul, Flint, Mich.; Sgt. Herman D. Koeller, Illinois State Highway Maintenance Police; Capt. John P. Quinn, Buffalo, N. Y.; Patrolman Carl F. Sanford, Jamestown, N. Y.; Lieut. Robert E. Raleigh, acting director, Northwestern University Traffic Institute; Sgt. Roland J. Schumacher, St. Louis, Mo.; Sgt. Emerson H. Westwick, Illinois State Highway Maintenance Police; Patrolman Francis P. Lowrey, Brookline, Mass.; Corp. William McKinley, New Jersey State Police; and Sgt. John A. Richardson, Portland, Ore.

Back row: Gerold O'Connell, assistant director of training, Northwestern University Traffic Institute; Trooper Richard A. Brecht, New York State Trooper; Patrolman Philip D. Batson, Seattle, Wash.; Lieut. Darrel E. Shaw, Ogden, Utah; Capt. Stuart A. Senneff, Florida Highway Patrol; Sgt. John D. Whittall, Washington State Patrol; Patrolman Howard S. Loraas, Duluth, Minn.; Sgt. Reinhold G. Apelt, Cleveland, O.; Private Harry Speer Shew, Delaware State Police; Patrolman Donald Murphy, Indianapolis, Ind.; Corp. Nicholas T. Landers, New York State Trooper; and Gordon H. Sheebe, acting director of training, Northwestern University Traffic Institute.



L-M DIAMOND MESH ORNAMENTAL GLOBES AND CANOPIES

L-M CANOPY HOLDERS AND FINIALS



L-M PORCELAIN HEADS

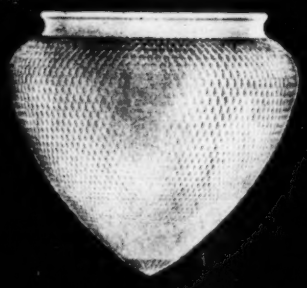
Keep your lighting system efficient with

L-M REPLACEMENT PARTS

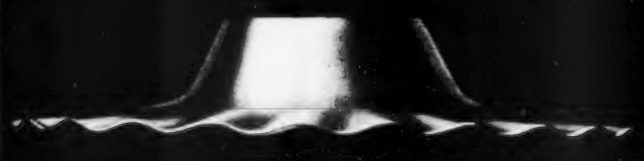
Wartime's big lighting job is to keep present systems efficient and economical. In replacing broken globes and refractors, worn or damaged reflectors, receptacles, sockets and other vital units, it will pay you to specify L-M Replacement Parts. Shown here are just a few of the many L-M Outdoor Lighting Parts that *fit all standard makes* of street and protective lighting equipment. For full information, call in your nearest L-M Field Engineer, or write direct to Line Material Company, 804 North Eighth St., Milwaukee, Wis.

LINE MATERIAL COMPANY

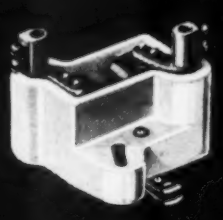
L-M DIAMOND MESH PENDANT GLOBES



L-M REFRACTORS



L-M REFLECTORS



L-M SOCKETS AND RECEPTACLES

Dimout Painting to Make Streets Safer

By Lewis Valentine
Police Commissioner
New York City

"It provides a means for better visibility to individuals stepping on and off the sidewalk at the curb."

"The corner curbs are painted both top and side face in one-foot lengths, with one-foot unpainted spaces between."

WHILE New York City may look like a pretty dull place at night, that dullnes represents about as close as we can get to 100 per cent non-cooperation with enemy submarine commanders. There is a dimout in New York. Because of it the traffic hazard has naturally increased.

On receipt of the order for dimouts along the eastern seaboard, the city started painting curbs and center lines on the main highways. The immediate project, performed by WPA under the direction of the engineering bureau of the police department, covered 300 miles, with an adidtional 60 miles yet to be painted.

The corner curbs are painted both top and side face in 1-foot lengths as indicated in the photographs, with 1-foot unpainted spaces between. The curbs along the blocks on main arteries are similarly painted in 2-foot lengths with 2-foot unpainted spaces between. On secondary arteries, the strips are 4-foot. Four-inch center lines also are painted on these streets.

The paint used contains an oleo-resinous varnish-type vehicle which helps it dry in 10 to 15 minutes. Tests indicate that this white zone paint is of a quality equal to the best zone paints.

In dimout, and even in blackout, these alternate white strips indicate the location of curbs and corners. We are of the opinion that this work is an important factor not only in the reduction of traffic accidents, but also in the prevention of accidents to pedestrians, since it provides a means for better visibility to individuals stepping on and off the sidewalk at the curb.

Because of the increased number of traffic fatalities, which reached an all-time peak of 112 in December, Chief Magistrate Henry H. Curran asked all New York City magistrates to mete out punishment to speeders and red light jumpers with a harsh hand starting February 1, 1943.

HELP YOUR CITY TO AID YOUR COUNTRY

For every person fatally injured in industry 7 skilled workers are killed on the highways. 60% OF THESE ACCIDENTS HAPPEN AT NIGHT

THESE are the statistics of recent years. What will tomorrow's records show? Industry is working 24 hours a day, 7 days a week, and many workers must travel between home and their work in the dark hours, often commuting from miles away. Roads that yesterday were mere byways today are highways, with peak-load congestion at shift hours. Cars are no longer merely for convenient transportation—they have become like plant-floor dollies, funneling the vitally needed war workers into the assembly lines of democracy-at-war. And every accident caused by lack of visibility—because it could be prevented—becomes a form of sabotage.

The Army-Navy "E", for Excellence in the manufacture of war equipment, now flies over six G-E plants employing 100,000 men and women.

WHAT YOU CAN DO ABOUT IT

1 Make an analysis of accidents and traffic flow to determine the zones in which night accidents habitually occur. For an accurate, comprehensive picture, spot these accident zones on a large map of the area involved.

2 Analyze this zone data to determine to what extent the accidents are caused by 3-shifts-a-day, war-plant traffic. If there is evidence of such relationship, your city should make sure—through adequate lighting—that these war plants will have swift, safe night transportation for war workers and war materials.

3 In re-planning your lighting system, there are three possibilities: (1) Equipment can be moved from relatively unimportant locations to the zones where lighting is most vital. (2) Your present system can be modernized. (3) You may install new equipment.

4 Prepare detailed plans for your proposed lighting improvements. The new IES code gives complete recommendations.

5 If it is necessary to purchase equipment, prepare a comprehensive report of your plans and their relation to the war effort—and submit it to WPB. With the proper priority, you will have little difficulty in obtaining the equipment you need.

For further information and help with your lighting program we suggest that you see the lighting specialist in the nearest G-E office. If your city is in a dim-out area, the G-E specialist (with his knowledge of special equipment and methods) can help you with your particular problems. *General Electric, Schenectady, N. Y.*

GENERAL ELECTRIC

454-21-3010

"Tests indicate that this white zone paint is of a quality equal to the best zone paint. We are of the opinion that this work is an important factor not only in the reduction of traffic accidents, but also in the prevention of accidents to pedestrians."—Police Commissioner Valentine, New York City.

Six out of Ten Die at Night in Traffic Accidents

OFFICIAL provisional figures giving details of motor-vehicle fatalities in the first three months of 1942 have just been issued by the Bureau of the Census. The 5,513 deaths represent a rate of 20.7 per 100,000, or about the combined rates for hernia and cirrhosis of the liver. The Bureau expects that final figures will put the motor-vehicle death rate at 27 per 100,000, or about even with that of broncho-pneumonia. The following facts are contained in the report:

As might be expected, most of the traffic-accident fatalities in large cities involved pedestrians. In the first quarters of 1941 and 1942, 75 per cent of the motor-vehicle accident deaths in cities with populations of 100,000 or more occurred among pedestrians. For smaller cities, the percentage of pedestrian deaths was less, but even in cities with 2,500 to 10,000 population, 51 per cent of the motor-vehicle traffic-accident fatalities were pedestrian deaths.

One of the important factors in such fatalities is the time of the accident. In the first quarter of 1942, 61.1 per cent of the motor-vehicle traffic-accident fatalities occurred between 6 P.M. and 6 A.M. and 38.9 per cent occurred during the remaining 12 hours of the day. The data show that almost twice as many pedestrians were killed as a result of accidents at night (1,299) as from accidents during the daylight hours (657). On a percentage basis, the night accidents accounted for 66.4 per cent of the pedestrian deaths and the day accidents, 33.6 per cent. For non-pedestrians, 57.8 per cent of the fatalities occurred in traffic accidents at night and 42.2 per cent between 6 A.M. and 6 P.M.

The fatalities resulting from day and night motor-vehicle traffic accidents vary somewhat, depending on the population of the place of accident. As may be seen from the table, the largest proportion of the fatalities at night occurred in cities with populations between 25,000 and 100,000 and the smallest percentage in rural areas.

The percentage of night fatalities by divisions ranged from 52.8 per cent in the New England States to 63.9 per cent in the West South Central States. Comparable figures for the other geographic divisions are as follows: Middle Atlantic States, 63.3 per cent; East North Central States, 61.1 per cent; West North Central States, 61.0 per cent; South Atlantic States, 63.4 per cent; East South Central States, 57.5 per cent; Mountain States, 53.7 per cent; and the Pacific States, 61.5 per cent.

PER CENT DISTRIBUTION OF TRAFFIC FATALITIES BY PLACE AND TIME

	Total	Day 6 A.M. 6 P.M.	Night 6 P.M. 6 A.M.
Reporting States	100.0	38.9	61.1
Cities of—			
100,000 or more	100.0	35.3	64.7
25,000-100,000	100.0	32.8	67.3
10,000-25,000	100.0	37.1	62.9
2,500-10,000	100.0	34.8	65.2
Rural	100.0	41.2	58.8

Better Light on Workers' Roads

IT is natural to expect a 50 per cent reduction in traffic accidents when there are only half the number of cars in operation that there were a year ago. But in many of the busiest industrial localities this is not happening at the present time.

While it is difficult to obtain equipment to fight the rising trend of night accidents, officials are not wholly averse to releasing materials for street lighting when the need for it is clearly demonstrated. Places where night traffic is heavy because of the transportation of war workers or military personnel should be especially watched. We are confident that the government will provide relief for such areas, even though it means the transfer of lighting equipment from sections where the need for this equipment is not so great. The important thing right now is to protect the millions who are actively winning the war, whether they wear overalls or uniforms.

A. F. Dickerson,
Chairman, Executive Committee, Street and Highway Lighting Safety Bureau, New York.

Give Your Town a New Lease on Light

...WHEN PEACE COMES

WHEN war ends and the lights go on again all over the world, will your town be left in the dark because of inadequate facilities?

Not if you plan NOW.

Even though most street and highway lighting projects are being held in abeyance because of the war, you can still insure a bright future for your community by *mapping out* a comprehensive street lighting program that will be ready to put into action the minute you need it.

Municipal officials of many large American cities are already doing this—others indicate they will begin soon. They realize that adequate, properly designed street lighting can do more than any other one thing to protect urban residents after dark. They know, too, that light reduces traffic accidents, helps business.

Should you decide to follow the lead of these far-sighted men, you are invited to take advantage of Union Metal's 36 years' experience in the design and construction of street lighting standards. For, although our production facilities are now entirely devoted to the war effort, our engineers have a practical knowledge of the problems you face and can prove of invaluable assistance to you now in planning the future.

The UNION METAL Manufacturing Company

CANTON, OHIO

Keep 'em Burning

After a Year of Outs - - Black, Dim, Brown

SOME of the knowledge and some of the results gained from a year's experience with passive defense lighting were summed up by four authorities under the direction of Samuel Hibben of the Westinghouse Lamp Division at a conference symposium on defense lighting at the National Technical Meeting of the American Institute of Electrical Engineers on January 26.

The first speaker was Tom P. Walker, President, Council of Electrical Operating Companies, Washington, D. C., who interpreted the electrical industry's reaction to blackouts, dimouts, and brownouts. This reaction has been thoroughly cooperative despite the fact that the blackout is actually a service interruption, the mortal enemy of the electrical industry whose creed is continuity of service. Laymen can hardly appreciate the shock to service which could result from suddenly dumping 60 to 70 per cent of a system's electrical load, unless competent preparations had been made to sustain the sudden loss of load and also to take care of an equally sudden return to 90 per cent of the former load when the blackout is over.

For years the people of this country have been learning and applying the lessons of better illumination. Experience has proved that it raises school grades, saves eyes, beautifies the home, makes the cities safer, and increases production. Conversely, the blackout has been shown to lower production.

Emphasizing the readiness of the power companies to accept necessary losses in revenues, Mr. Walker nevertheless questioned the necessity of diming out cities to minimize "beacon effect" or make bombing more difficult.

Extending the dimout to many more cities, or making dimout nationwide, will certainly increase the injuries and fatalities of traffic accidents in accordance with present experience in many of the darkened cities of coastal states. Another unfavorable result is the depressive effect on civilian morale, said to be the most dreaded of all war discomforts in England. Night sports events cannot be held; production falls; and the volume of business is reduced. The direct monetary loss to the power industry is reflected in the electrical revenue decline of $500,000 per month in the New York area and a comparable reduction on the Pacific Coast. Mr. Walker made the important statement that there is no lack of electrical capacity in the United States today for civilian use. The energy is available and generating capacity cannot be hoarded. On the other hand idle equipment does save wear and tear and fuel.

"Brownouts"

The purpose of the brownout is to save fuel and transportation needed to carry fuel, and to assist in the maintenance of electrical equipment where man-power is insufficient. Should it be decided to make the brownout nationwide, answers to a number of questions must be worked out. Should electrical power be stringently conserved, in the coal, oil and water-power regions? The measure would reduce electrical revenues by $100,000,000, and costly changes would have to be made, for instance in the street-lighting systems. As a silver lining to brownouts, dimouts, and blackouts, Mr. Walker foresees a national surge to better outdoor and indoor lighting after the war. In closing, he pointed out that while he can recall no song which trills "When I grow too old to dream, I can buy a can of cream," there is real inspiration in the current "When the Lights Go on Again All Over the World."

Wartime control of lighting for passive defense was discussed by Captain George J. Stockley, in the absence of Lt. Colonel B. W. Beers, Executive Officer Operating and Training Division, Headquarters Second Service Command, New York. While the dimout is unpopular in the 16 states of the eastern defense command, Captain Stockley said that before the dimout there was enough shore light 30 miles out to sea to permit the reading of newspapers on the bridge of a ship and to silhouette every ship in the convoy. U-boats flocked to the killing. A German prisoner reported that on one occasion his submarine came to the surface and its commander looked at the convoy, and ordered that when a certain patch of shore lights was obscured, to shoot, and then went to bed. Out at sea, on the other hand, with only a blue light under the bows of each ship, none of the vessels could be seen, and with difficulty even on a moonlight night. The reasons for the unpopularity of the dimout in order of frequency of complaints, are the loss of business, whose volume varies directly with the amount of light; loss of life through driving with too little light; and plain annoyance.

An extra value of the dimout is that it permits blackouts to be obtained more quickly than from a normal lighting condition. Captain Stockley recommended that factories and homes be provided with blackout curtains, which has not been done.

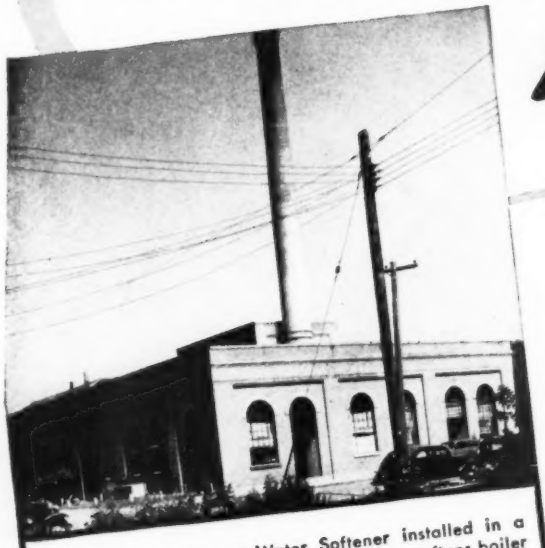
Following a lively talk by Major R. P. Breckenridge, Corps of Engineers, Camouflage Branch, U. S. Army, Fort Belvoir, Va., on modern methods of camouflage, the price in pedestrian and driver lives due to reduced visibility on the streets at night was shown statistically by Richard E. Simpson, Chairman, Dimout Consulting Committee, State Defense Council, Conn. During the last 10 years, the life-saving values of adequate street lighting gathered practical public recognition. There was no gainsaying the before-and-after traffic accident statistics painstakingly developed in Hartford, Bridgeport, and New Haven during the last five years. Wherever poorly lighted streets were adequately lighted, accidents invariably declined. The full report of Mr. Simpson's important paper will be published here in the March issue of THE AMERICAN CITY.

CONFUSION TO ENEMIES

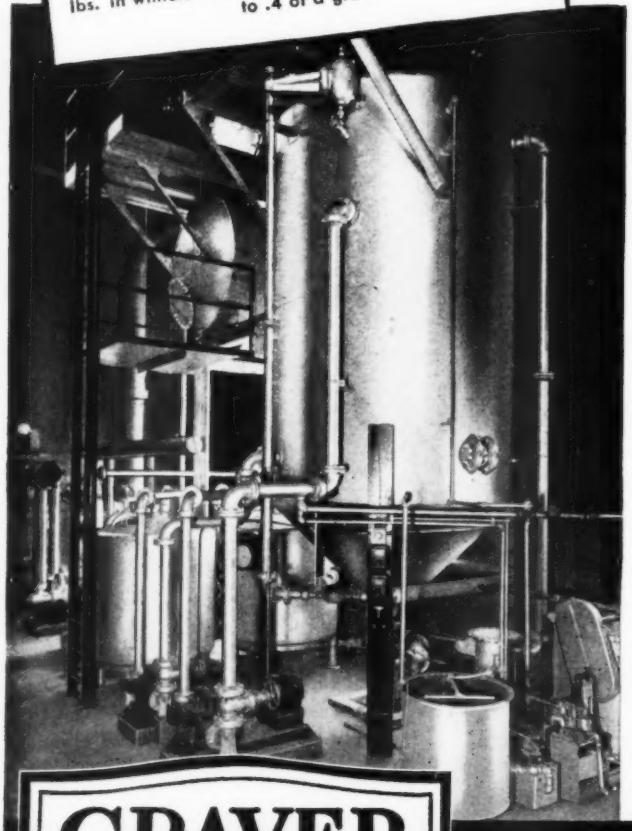
BIG cities like Chicago, Pittsburgh, and New York cannot be concealed by blackouts, as moonlight and geography reveal identifying characteristics.

"Take the city of Chicago," said a Chicago man in the discussion following the symposium on defense lighting at the recent meeting of the American Institute of Electrical Engineers. "Though not on the coast, Chicago can be located by the bend in Lake Michigan. In an effort to make Chicago safer from bombing it was decided to eliminate such direction finders as diagonal streets, advertising signs, and park lighting. Residential lighting was left unchanged as two miles up it was merely a haze giving no information. On the other hand, the blacked out areas became direction finders. Washington Park and Soldiers Field were obvious in their somberness. The solution appeared to be to duplicate these dark areas at one or more locations so that which was which would not be too clear to the aviator looking for objectives and not interested in promiscuous bombings."

No trace of scale or corrosion after *14 MONTHS USE!*



A Graver Hot Process Water Softener installed in a Minnesota Municipal Water and Light Plant softens boiler feed water for 1 Riley and 3 Kidwell 250 H. P. water tube boilers. Operating at 400 lbs. pressure they generate 300,000 lbs. of steam in summer and 500,000 lbs. in winter. Hardness of 11 to 22 grains is reduced to .4 of a grain.



UP IN MINNESOTA, a Municipal Water and Light Plant* installed a Graver Hot Process Water Softener to treat their boiler feed-water. Their boilers supply steam to drive the turbines which generate power for the city lights and steam to heat the business district of the town. And they are the source of power for the pumps which supply the city water.

The exacting demands on this boiler plant are continuous. Nevertheless, a thorough examination of the boilers after 14 months of use revealed that there was *no trace of scale or corrosion in the system.*

Briefly, Here Are The Facts

- Water supply tests 11 grains hardness in Summer and 22 grains in Winter.
- Graver Hot Process Water Softener reduces this to approximately .4 of a grain the year around.
- There is no trace of scale or corrosion.
- Water treating costs materially reduced.

This is just another example of the efficiency and economy of the Graver Hot Process Water Softener, and it is typical of the service this equipment is delivering in hundreds of plants all over the country.

If you have a specific water conditioning problem, consult Graver. There's no obligation.

You'll Want This Bulletin

Our new bulletin, No. 314, gives complete details about Graver Hot Process Water Softeners and includes flow charts, tables, and other valuable data. Write for your copy today.

GRAVER TANK & MFG. CO., INC.

4809-35 Tod Avenue, East Chicago, Ind.

NEW YORK CATASAUQUA, PA. CHICAGO TULSA

**Name on request*

GRAVER HOT PROCESS WATER SOFTENERS

City Manager Appointments

H. W. Bollinger, borough foreman, has been appointed acting manager of Carlisle, Pa., to serve while George P. Searight is Captain in the U. S. Corps of Engineers.

Robert J. Cooper, former director of purchase and supply, has been appointed city manager of New Rochelle, N. Y., to fill the vacancy created by the death of Paul A. Bankson.

John N. Edy, former manager of Berkeley, Flint, Dallas, and Toledo, and assistant commissioner of the Federal Public Housing Authority, has been appointed first city manager of Houston, Tex.

Lloyd Jay, city clerk of Guthrie, Okla., has been appointed city manager of that city to hold office until after the May elections. He succeeds John Hamill, who had served as manager from 1935 until his death in November.

Bion F. Jose, manager of Rumford, Maine, from 1927-1932 and from 1934-1936, has been appointed town manager of Milo, Maine, to take over the duties of David Stevens, who resigned to become state tax assessor.

Everett B. Lane, city manager of Marysville, Mich., has been appointed manager of Grosse Pointe Park, succeeding F. L. Streed, who resigned to take over a war assignment in Detroit.

Vail O. Leach, engineer of the Vermont State Highway Department, was appointed town manager of Windsor, Vt., to fill the vacancy created by the death of Ralph Burnham.

Herbert C. Legg, former member of the board of supervisors of Los Angeles County, has been appointed city manager of Long Beach, Cal. He succeeds Carl Erickson.

Don C. McMillan, city manager of Ventura, Cal., since November 1934, has been appointed city manager of Alameda.

Herbert P. Orland, an assistant area engineer for the U. S. Engineers, has been appointed municipal manager of Northfield, Vt., to succeed Perry Hobbs, who resigned to enter military service.

Charles R. Schwanenberg, city manager of Alameda, Cal. for the past six years, has been appointed city manager of Oakland, Cal. He succeeds John F. Hassler who was appointed state director of finance by the new governor-elect of California.

Vance Van Riper, city clerk of Bakersfield, Cal., is taking over managerial duties while Claude E. Peavy is on leave to serve as Lieutenant in the Naval Coast Guard Service.

D. Bryan Willett, councilman, has been named acting manager of Laramie, Wyo., to serve until a permanent appointment is made.

Roy Winters, city assessor has been named acting city manager of Muskegon, Mich., while Captain George F. Liddle is on leave serving as assistant post utility officer at Fort Sheridan, Ill.

W. R. Woodbury, city manager of Harrisonburg since 1939 and manager of Altavista from 1936-39, has been appointed city manager of Williamsburg, Va. He succeeds A. L. Meisel, who resigned to enter private business.

Clarence E. Ridley,
Executive Director, International City Managers' Association.

Narrow Margins to Conserve Paper for Wartime Needs

The war, and not a sudden spasm of economy by the publishers, is the cause of the slender margins which make this issue of The American City less attractive than heretofore.

Under rulings from Washington, a 10 per cent reduction in paper consumption is imposed on periodicals. Instead of reducing the circulation of The American City, it has seemed advisable to make much of the obligatory saving by trimming the magazine to a somewhat smaller page size.

It is hoped that when the war has ended in victory, the more spacious appearance of The American City can be resumed.

The Municipal Bond Market

Some recent sales of new issues as reported in January issues of *The Bond Buyer:*

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$145,000	Wichita, Kans., Refunding	1.16	5-33 Avg.	1.05
120,000	New Rochelle, N. Y., Funding	1.10	1-4 Ser.	1.08
350,000	Onondaga Co., N. Y., Home Relief	1.20	5.85 Avg.	1.18
500,000	Nashville, Tenn., Extension of Airport	1.25	12 Avg.	1.244
400,000	Erie, Pa., Funding	1.5	1-16 Ser.	1.33
2,800,000	Minneapolis, Minn., Refunding, and Public Relief	1.40	1-10 Ser.	1.354
172,000	Bloomfield, N. J., Improvement	1.40	5-75 Avg.	1.37
340,000	South St. Paul, Minn., Refunding	2	13.16 Avg.	1.48
135,000	Mitchell, S. D., Water Works	1.75	11.75 Avg.	1.57
1,020,000	Kenosha Co., Wis., Refunding	1.60	4-5 Avg.	1.593
400,000	Troy, N. Y., Refunding	1.70	6.85 Avg.	1.689
115,000	White Plains, N. Y., Refunding	1.80	13-5 Avg.	1.792
675,000	East Chicago, Ind., Sanitary Dist., Sewage Disposal Plant	2	2.26 Ser.	1.89
166,000	Toledo, Ohio, First Mortgage Water Works Revenue	2.5	14/28 Opt. Prem.	1.89
109,000	West Orange, N. J., Refunding	2.25	15.66 Avg.	2.15
110,000	Vanceburg, Ky., Electric Light, Heat and Power Revenue Refunding	3.5	7.5-10.5 O.-A., Prem.	2.91
339,000	Phoenix, Ariz., Refunding, Refunding Water, and Sewer	3 & 2	10 Avg.	3 & 2

War Plant Machinery Leased by Federal Gov't Not Taxable Locally

UNLESS they can persuade Congress to change the present law, local governments will have no power to tax war plant machinery leased by the federal government to private corporations. Such was the precedent set this week when Common Pleas Judge Henry Ellenbogen handed down his ruling in the Mesta Machine Co. case at Pittsburgh.

The court's decision puts a crimp in Allegheny County's (Pittsburgh) plan to collect taxes from Mesta on $618,000 worth of equipment leased from the government for an ordnance plant at West Homestead, Pa. It also establishes a precedent which may put several billion dollars worth of war plant facilities beyond the reach of local governments throughout the country. Unless the case is reversed on appeal, municpalities will have to look to Congress, not to the courts, for the right to go after such enticing revenues. . . .

In upholding the government's argument, the court applied the rule set up by the Reconstruction Finance Corp. Act. This permits municipalities to tax real estate owned by a government corporation but exempts all machinery owned by the federal government.

—From *Business Week* for January 23, 1943.

Where Private and Public Housing Meet

POINTS of contention between the private building industry and public housing organizations were reviewed by the Urban Land Institute at its annual meeting in Washington, D. C., January 29. A cooperative attitude between the two groups, it was agreed, can assist in providing each its proper field of activity.

In a formal resolution it was recommended that "all public housing shall house first the very lowest income group and shall work upward until the ceiling of public housing becomes the floor of the lowest level reached by private enterprise."

The Board of Trustees of the Institute also voted in favor of "the establishment of a Federal Urban Land Commission, to be provided with the funds and powers (A) to extend grants to cities for the purpose of preparing master plans for metropolitan areas, with detailed plans for the redevelopment of blighted areas, and (B) to extend credits to local land commissions for the purpose of acquiring land in blighted areas for redevelopment by private enterprise, as well as for public uses."

Hugh Potter, developer of the famous River Oaks section of Houston, Texas, was elected president. Three new members were added to the Board of Trustees: Mrs. Samuel I. Rosenman, Albert Greenfield, and Guy Greer.

BUFFALO-MADE NIAGARA WATER METERS

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A year ago some people were asking, "Is the continued manufacture of water meters necessary during the war?" After investigation, the War Production Board said, "Yes,—but conserve copper."

Since then, meters have helped stretch water supplies further, have minimized shortages. And in a great number of cities, these iron-case meters are proving to be more than a wartime expedient. They rate consideration as a permanent feature along with other equipment such as valves and hydrants that have cast iron bodies and bronze works.

The success of cast iron meters is especially good where waterworks use the standard cast iron meter —the Niagara. For 50 years it has been continuously and successfully built with galvanized cast iron casing. Wartime limitations have not changed any essential features nor cheapened its quality.

If you actually should use bronze case meters, your Niagara Meters can be economically converted after the war by changing the casings to cast bronze, for working parts are fully interchangeable.

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Municipal Law Notes and Decisions

Prepared by National Institute of Municipal Law Officers, Washington, D. C.
Charles S. Rhyne, Executive Director

Assessments—Disregard of Notice Bars Claim

Where city gave notice of hearing on assessments to property owner under its home-rule charter, which met statute requirements, property owner who ignored the notice could not later claim that assessments were unfair. *Kidd v. City of Big Spring*, 164 S. W. (2d) 727 (Tex. Civ. App. Sept. 18, 1942).

Assessments—Refund of by City

Where vendor sold realty to purchaser for cash and a mortgage to cover the difference between the agreed price and the cash payment, less unpaid taxes and assessments, the city must refund wrongfully paid assessments to the purchaser rather than the vendor as the purchaser had paid the sewer assessments. *Lahey v. Trachman*, 130 Fed. (2d) 748 (U. S. C. C. A. 2nd, Aug. 19, 1942).

Bonds—Assessments Applied to Outstanding Bonds

Assessments collected to pay special assessment bonds must be applied pro rata on the balance remaining unpaid on outstanding bonds rather than on all bonds. *How and Co. v. City of Chicago, Chicago Flower Growers, Inc. v. Same*, 44 N. E. (2d) 329 (Ill. App. Oct. 26, 1942).

Condemnation—Taxes—Interest and Penalties on Land Acquired by the United States

Interest and penalties continued to accrue on the taxes on land acquired by the United States, which were a lien on the property, and the amount necessary to pay such taxes, interest and penalties was deductible from the owner's compensation award. *United States v. 53¼ Acres of Land More or Less in Borough of Brooklyn, Kings County, New York*, 46 F. Supp. 875 (U. S. D. C. N. Y. Sept. 29, 1942).

Evidence—Lack of—Conviction for Sale of Literature of City Streets

Where there was no evidence to prove that defendant had sold literature on sidewalks, whose use had been prohibited for that purpose on Saturday nights, his conviction was unauthorized. *Csiki v. City of Moultrie*, 22 S. E. (2d) 178 (Ga. App. Oct. 9, 1942).

Firemen—Minimum Wage Law

A widow could recover salary due her deceased husband, a fireman, under a state minimum wage law although the city of Fort Worth had not created a fire department and contended it had no such department within the meaning of the minimum wage law as the city could not defeat the basic purpose of the minimum wage law in this way. *City of Fort Worth v. Morrison*, 164 S. W. (2d) 771 (Tex. Civ. App. Sept. 11, 1942).

Fireworks—Mayor's Act in Allowing Discharge—City Liability for Accident

Where a Mayor granted a permit to discharge fireworks within city limits pursuant to a state statute conferring authority on him to grant such permits and an accident was caused thereby, the city was not liable for injuries resulting from such discharge as the Mayor was acting as agent of the State rather than the city in granting the permit. *Flynn v. City of Kaukauna*, 5 N. W. (2d) 754 (Wis. Oct. 13, 1942).

Milk—Inspection Fee on Distributors

An ordinance levying an inspection fee on distributors of milk was not invalid on the mere contention that the amount of fees collected might exceed the sum needed to enforce the ordinance since such excess could be adjusted. *City of Newport v. Hiland Dairy Co.*, 164 S. W. (2d) 818 (Ky. June 16, 1942. Reh. Den. Oct. 27, 1942).

Milk—Ordinance in Conflict with State Law

City of Stockton ordinance requiring city inspection of all dairies selling milk in the city as a condition precedent to such sale is invalid as it conflicts with a state law allowing a state health district inspector to make such inspection.

Nuisances—Fall into Unguarded Ditch

A borough is liable for injuries sustained when plaintiff fell into a trench which had been left unguarded at night by workers under the control of the Borough. *Reardon v. Borough of Wanague*, 28 Atl. (2d) 54 (N. J. Sup. Ct. Sept. 1, 1942).

Ordinance—Appeal From Is "Civil Action"—Parking on Private Street

A city has the right to appeal from a directed verdict and judgment in favor of a defendant charged with violating the city's ordinance by parking in a no-parking zone. The city could prohibit parking on a privately-owned street where the street owners had voluntarily allowed the public to use the particular street. *City of Clayton v. Nemours*, 164 S. W. (2d) 935 (Mo. App. Oct. 6, 1942. Reh. Den. Oct. 20, 1942).

Ordinances—City Could Prohibit Trespass on Waterworks Property 30 Miles from City Limits

A city which had acquired title to land located 30 miles outside its limits for a waterworks system had the right to enact an ordinance prohibiting the public from using the waterworks property for fishing and other purposes and a person violating such ordinance could be prosecuted in the city's courts. *City of Birmingham v. Lake*, 10 So. (2d) 24 (Ala. Oct. 8, 1942).

Photographers—Transient—License Fee for Unreasonable Amount

An ordinance imposing a $10 per day license fee on transient photographers, which would in fact prevent this business from operating in the city is invalid as the business is not injurious to health, safety and peace and the fee is unreasonable. *City of Racine v. Weyhe*, 5 N. W. (2d) 747 (Wis. Oct. 13, 1942).

Religion—License Tax on Jehovah's Witnesses

An ordinance imposing a license tax for selling merchandise on city streets does not violate the Federal Constitution's guarantees of freedom of speech or religion when applied to sales of pamphlets by Jehovah's Witnesses. *Douglas v. City of Jeannette*, 130 Fed. (2d) 652 (U. S. C. C. A. 3rd Aug. 31, 1942).

Sidewalks—Gravel on—Property Owner's Liability

The owner of a used-car lot who allowed cars using his lot to carry gravel onto a sidewalk was negligent in not cleaning the gravel off the sidewalk and liable for injuries sustained by a pedestrian who fell as a result of stepping on such gravel. *James v. Burchett*, 129 Pac. (2d) 790 (Wash. Oct. 14, 1942).

Soldiers and Sailors—Stay on Proceeding to Abate a Public Nuisance

Where plaintiff, now a soldier, had, previous to his military service, conducted a business which had been adjudged a common nuisance, his induction into military service does not authorize the stay of abatement proceedings against the nuisance. *City of Cedartown v. Pickett*, 22 S. E. (2d) 318 (Ga. Sept. 21, 1942).

Streets—City Cannot Collect Compensation for Use by State

Where city street, under State Statute had been designated for canal uses, the street was already dedicated for public use and the state did not have to pay compensation to city for the use of the street, but would have to pay damages resulting from destruction of city water pipes. *City of Little Falls v. State*, 37 N. Y. S. (2d) 463 (N. Y. Ct. of Claims Oct. 7, 1942).

Taxes—Back Taxes Could Be Collected After Property Was Sold at Tax Sale

After a sale of wharf improvement district property for an amount less than delinquent taxes, the District Board could still collect the remaining amount of back taxes from District taxpayers. *Papa v. Kitchens*, 164 S. W. (2d) 439 (Ark. Sup. Ct. June 29, 1942).

Taxes—Charge Back Not Allowed After Reasonable Time Has Elapsed

Racine County could not charge back to the town certain assessment taxes after a 12-year period as this was not deemed a reasonable time to allow a charge back. *Town of Caledonia v. Racine County*, 5 N. W. (2d) 796 (Wis. Oct. 13, 1942).

Tourist Camps—Ordinance Regulating

An ordinance regulating tourist camps, not in conflict with statutes, is a reasonable exercise of municipal powers. *Juengel v. City of Glendale*, 164 S. W. (2d) 610 (Mo. App. Oct. 6, 1942).

Water—City Not Required to Serve All in Adjoining Town

Where a city was supplying water to a small portion of an adjoining town, it was not bound to service others in the town in response to a Public Service Commisison order as the city is not considered a public utility bound to serve all who wanted water where it had no right to exclude water utilities from the adjoining town. *City of Milwaukee v. Public Service Commission*, 5 N. W. (2d) 800 (Wis. Oct. 13, 1942).

Workmen's Compensation—Worker Had Right to Refuse to Submit to Unnecessary Operation

Where the Industrial Board held that a city employee had the right to refuse to submit to an operation which two out of three doctors who had examined him said would be dangerous, and useless, the city must continue to pay workmen's compensation to such employee for total disability. *City of Atlanta v. Padgett*, 22 S. E. (2d) 197 (Ga. App. Oct. 3, 1942).

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New Approach to Control of Outdoor Advertising

The Vermont Billboard Case

By ALBERT S. BARD
Counsel, National Roadside Council

THE Vermont Supreme Court, in a unanimous decision rendered January 5, 1943, not only sustains the Vermont outdoor advertising act [Vermont Public Laws, Chapter 332 (Sections 8338-8358) as amended in 1939 and 1941], but also puts a new crimp in that unpopular business and public nuisance. The decision deserves to stand with the great Massachusetts decision of January 1935. The case is *Kelbro, Inc.*, v. *Myrick as Secretary of State, the Department of Highways, et al.*

In the Vermont case Kelbro, Inc. (Kelly Brothers—a billboard concern) undertook to ask the Vermont courts why it may not maintain and rent out billboards on private property within certain distances of highways and highway crossings, notwithstanding the contrary prohibitions of the statute, inasmuch as advertisers not in the billboard business, like farmers and others, are permitted to put up signs in such locations advertising their produce or wares sold on the premises or nearby.

Was not this an unconstitutional discrimination?

Did it not deny to the Kelbro corporation equal protection of the laws?

Did it not deny to the billboard concern due process of law?

Did not the statute take the Kelbro corporation's property without making due compensation?

In short, is not the statute which allows a business sign to one concern and denies a billboard to another in a similar location a violation of both the Federal and the Vermont Constitutions?

In order to bring the question into court, the billboard concern had refused to take down its boards which had been erected in an area prohibited to it by an amendment to the statute, but not prohibited to the roadside stands, etc., and when the Attorney General of Vermont threatened to tear the billboards down as illegal, brought suit and asked for an injunction against the state authorities.

Well, the Vermont Supreme Court on January 5, 1943, obliged Kelbro with an answer. In a unanimous decision the court held in effect:

Outdoor Advertising Is a Use of the Highway, Not of Abutting Private Property.

1. We agree with the Philippine Island court (*Churchill and Tait* v. *Rafferty*, 32 P. I. 580) that a billboard erected on private land in order to be seen from the highway is not so much a use of the private land as it is a use of the highway; and regulation of billboards is thus not so much a regulation of the private property as it is a regulation of the use of the public thoroughfare. The great Massachusetts decision (*General Outdoor Advertising Co.* v. *Dept. of Public Works*, 289 Mass. 149) held to the same effect when it said:

"The only real value of a sign or billboard lies in its proximity to the public thoroughfare within public view. . . . The object of outdoor advertising in the nature of things is to proclaim to those who travel on highways and who resort to public reservations that which is on the advertising device, and to constrain such persons to see and comprehend the advertisement. . . . In this respect the plaintiffs are not exercising a natural right. . . . they are seizing for private benefit an opportunity created for a quite different purpose by the expenditure of public money in the construction of public ways. . . . The right asserted is not to own and use land or property, to live, to work, or to trade. While it may comprehend some of these fundamental liberties, its main feature is the superadded claim to use private land as a vantage ground from which to obtrude upon all the public traveling upon highways, whether indifferent, reluctant, hostile or interested, an unescapable propaganda concerning private business with the ultimate design of promoting patronage of those advertising. Without this superadded claim, the other rights would have no utility in this connection."

The Easement of Visibility from the Highway Is a Limited One. Private Ownership Includes No Inherent Constitutional Right to Rent Out Sites for Billboards.

2. The billboard concern bases its claim of a right to erect, maintain, and lease out space on its boards upon the consent of the private landowner who abuts upon the highway. This leads to consideration of the private landowner's rights in the highway. *Among his property rights is that of visibility from the highway for purposes connected with his own property, but for such purposes only. This right is in the nature of an easement over the highway, but is limited to a benefit to his own property. He has no legal right to extend the easement to others or to increase the burden upon the highway.*

"The result, as to the claim here made, is that the right of view of the owner or occupant of the abutting property is limited to such right as is appurtenant to that property and includes the right to display only goods or advertising matter pertaining to business conducted thereon. His appurtenant easement does not include the right to display advertising matter foreign to a business conducted on the property, and he could not convey to this plaintiff a right that he did not himself possess."

Use of Public Highways for Commercial Purposes. Distinction Between Business Signs and Outdoor Advertising. Classification Legal.

3. The greater privileges accorded by the statute to advertisers not engaged in the outdoor advertising business (preferential treatment as to license fees and permits, freedom from required setbacks, advertisements of goods manufactured or sold on the premises or within 500 feet therefrom, advertisements by or on behalf of a municipality, etc.) are matters of sufferance rather than of right. These privileges may be permitted to some classes and denied to others under the police power, according to the legislature's idea of the public welfare. *There is no inherent right to use the highways for commercial purposes.* (Citing Valentine v. Chrestensen, 316 U. S. 52, and other cases.) Kelbro is not among those entitled to these preferential privileges and has no legal right to complain when they are accorded to others. Moreover the classification is not arbitrary, but legitimate.

The Vermont Supreme Court accordingly dismissed the Kelbro complaint.

Interstate Comity

The case is exceptional in that public officials of a neighboring state, learning of the case, applied for and were granted leave to file an *amicus curiae* brief upon the side of the public interest in opposition to the billboard industry. John J. Bennett, Jr., until recently Attorney General of New York, as attorney for the New York State Council of Parks (Henry Epstein, Solicitor General, of Counsel), and Wil-

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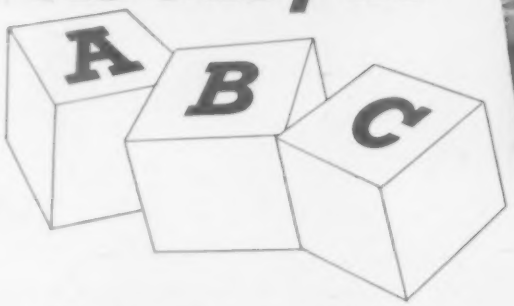

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Tom C. Chanler, Corporation Counsel of New York City, as attorney for Robert Moses, the city Park Commissioner (Jeremiah M. Evarts, Assistant Corporation Counsel, of Counsel), and Raymond P. McNulty, attorney for the Long Island State Park Commission, joined in the brief. This would seem to be a new and wholesome step in interstate comity for common action upon a matter of general public interest.

The *amicus curiae* brief of the New York officials made telling use of the excellent article by Miss Ruth I. Wilson in 30 Georgetown Law Journal, 723 (for June 1942), entitled "Billboards and the Right to be Seen from the Highway," where the question of the visibility of abutting property in terms of an easement over the public highway is explored at length for the first time.

The *amicus curiae* brief also refers to the fact that the distinction between advertising which directs attention to business on the premises (often called "business signs") and what is generally known as "outdoor advertising" is recognized and applied in much of the current legislation upon the subject, and cites the statutes of 17 different states in illustration of the accepted distinction. So many zoning ordinances and sign regulations of municipalities also embody the same obvious distinction that one is somewhat surprised to find the astute billboard industry making a direct challenge to its legality, as it did in the Kelbro case.

The boards in the Vermont case were erected prior to the statutory amendments which put their sites into prohibited ground for them. The opinion does not discuss this point, but merely decides that the boards are now illegal and may be removed. The case, however, is one more case upholding a so-called "retroactive" prohibition compelling the removal of existing boards legal when originally erected, and without compensation.

Should the Vermont decision, limiting the easement of visibility possessed by private land with respect to the public highway, be followed and applied generally, this new approach to the outdoor advertising nuisance (here applied to rural billboards) may yet be made the basis of the solution of the urban problem also. It is at least a third leg on which to stand regulation of the outdoor advertising business—two others being the police power applied through zoning, and the police power applied through direct regulation of signs.*

* Copies of the opinion may be obtained from the National Roadside Council, 119 East 19th Street, New York City.

Parks in a World at War

(Continued from page 53)

away from worries! They move us over to some other spot on the carpet, not to wear threadbare the place that gets the wear and tear of business life.

"All these things are just the restorative we need. A man cannot weed his row of onions without having that activity do something to him. He is kneeling down on Mother Earth again—he is in contact with the soil. Our scientists call it a biological need. That's true of other relaxations, too. They all have their place in total war. They put us back into balance. They give us nervous tone and resilience. They are nature's own nerve tonics. Certainly we can thank the wisdom of our fathers for having provided park institutions and a service which now meets this vital need. If, at this moment, we can mobilize all the right-thinking citizens like yourself, get them to spread the gospel of periodic relaxation, we need not content ourselves merely with worrying about the fact that we have worries, thereby adding still another worry to the list already threatening our undoing. Instead of wringing our hands, we can spit on them and put them to work to do something about it. By encouraging everybody to develop his own relaxation, his own saving hobby, we can beat all the Hitlers, and all their campaigns, in any war of nerves that they may launch! Our park systems, either here in our own home town, or scattered over the state, up in the North Woods, out in the mountains, or down at the seashore—they are a godsend. Made to order for just this crisis!"

In the last two years, these approaches have been our new publicity. Already, we believe, we have made more progress in developing a public understanding of the park system, its meanings and values, than we made in all the years when we were advancing only *our* ideas, but in such vague and foreign terms that they awoke no responsive thinking on the part of the general citizenship.

The first fundamental of park security is that parks talk the language of the common people to make themselves understood. When we relate ourselves to things the common people are thinking about, then we take our first steps toward insurance of our future. We think this process in connection with the park program is doing just that. We think we see evidences that it is doing so, successfully.

De Luxe Accommodations

(Continued from page 56)

and repair of streets, sewers and drains. For street cleaning the Village uses one model 20 Elgin sweeper. A 7-ton Austin-Cadet road roller and an Ingersoll-Rand compressor constitute the balance of the mechanical equipment used by the Department and housed in the garage building. Snow plowing is accomplished by attaching Good Roads plows to three trucks equipped with mounting attachments and, when necessary, two trucks retained during the winter months are hired as required. Snow removal from the business section is accomplished by Village-owned dump trucks and hired equipment loaded by hand usually with the assistance of extra forces employed during the emergency.

The Police Department, under the supervision of H. Lloyd Jones, Commissioner, is well equipped for a community of this size. It has 3 Chevrolet patrol cars equipped with 5-watt RCA two-way radios and two Harley-Davidson motorcycles. To keep in contact with them, the police station has a 25-watt RCA transmitter with a 120-foot steel aerial. Officers consider that this equipment has been invaluable in crime control. They point to arrests that they have made when the police have arrived on the scene almost as quickly as the burglars.

One of the duties that the desk sergeant has acquired because of the war has been that of keeping constantly tuned to one of the New York radio stations designated to issue emergency air raid signals. "It is pretty hard to keep paying attention to it all the time," the sergeant said. "Some of the stuff we have to listen to gets to be pretty awful."

The regular police force, headed by Richard Gorman, Chief, consists of nineteen men.

The department has the advantage of a well-equipped shooting gallery in the basement. This is a 75-foot range with intermediate facilities for 59-foot target practice if desired. Practice on it has helped the men win several prizes in target practice.

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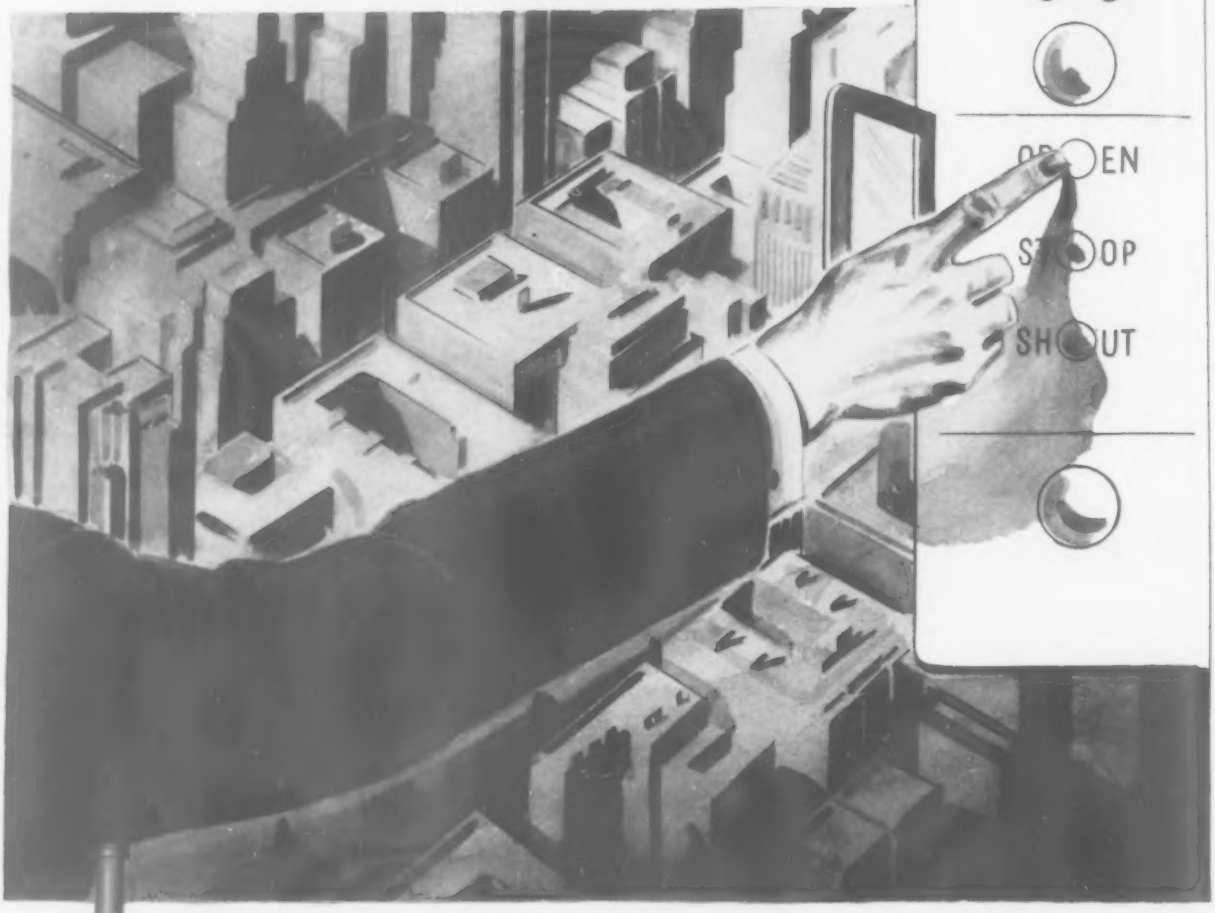

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SOUTHERN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Meeting. (Hotel Patten) Sec.-Treas., Berrien W. Davis, State Maintenance Engineer, Raleigh, N. C.

Feb. 17-18—Chicago, Ill.
AMERICAN CONCRETE PIPE ASSOCIATION. Annual Convention. (Hotel Drake) Sec., M. W. Loving, 33 W. Grand Ave., Chicago, Ill.

February 17-18—Cleveland, O.
NATIONAL ASSOCIATION OF HOUSING OFFICIALS. Regional Meeting. Dir., Hugh R. Pomeroy, 1313 E. 60th St., Chicago, Ill.

Feb. 17-19—New York, N. Y.
ASSOCIATION OF HIGHWAY OFFICIALS OF NORTH ATLANTIC STATES. Highway Problems Conference. (Hotel Pennsylvania) Sec.-Treas., A. Lee Grover, State Highway Dept., Trenton, N. J.

***Feb. 18—Boston, Mass.**
NEW ENGLAND WATER WORKS ASSOCIATION. (Hotel Statler) Sec., Frank J. Gifford, 613 Statler Bldg., Boston, Mass.

***Feb. 19—Pittsburgh, Pa.**
NATIONAL PUBLIC HOUSING CONFERENCE. Annual Meeting. (Hotel William Penn) Exec. Dir., Alexander L. Crosby, 122 East 22nd St., New York, N. Y.

Feb. 25-27—Harrisburg, Pa.
PENNSYLVANIA STATE ASSOCIATION OF BOROUGHS. (Hotel Penn Harris). Pres., Thomas F. Chrostwaite, Hanover, Pa.

***Mar. 8-12—New York, N. Y.**
NATIONAL CONFERENCE OF SOCIAL WORK. Regional Meeting. (To be followed with similar meetings in St. Louis, April 12-16; and in Cleveland, May 24-28). Gen. Sec., Howard R. Knight, 82 N. High St., Columbus, O.

***Mar. 10-12—Absecon, N. J.**
NEW JERSEY MOSQUITO EXTERMINATION ASSOCIATION. Annual Meeting. (Seaview Country Club) Sec., Thomas J. Headlee, New Brunswick, N. J.

Mar. 12-13—Minneapolis, Minn.
AMERICAN WATER WORKS ASSOCIATION—MINNESOTA SECTION. Annual Conference. (Hotel Nicollet) Sec.-Treas., Ronald M. Finch, Wallace & Tiernan Co., Inc., 416 Flour Exchange, Minneapolis, Minn.

Mar. 25-26—Trenton, N. J.
NEW JERSEY SEWAGE WORKS ASSOCIATION. (Hotel Stacy-Trent) Sec., John R. Downes, Plainfield, N. J.

***Mar. 25-26—Syracuse, N. Y.**
AMERICAN WATER WORKS ASSOCIATION—NEW YORK SECTION. Spring War Conference Meeting. (Hotel Syracuse) Sec., R. K. Blanchard, 50 W. 50th St., New York, N. Y.

Mar. (Date Later)—New Orleans, La.
LOUISIANA MUNICIPAL ASSOCIATION. Sixth Annual Convention. Sec.-Treas., Mrs. Henry Jastremski, City Hall, North Blvd., Baton Rouge, La.

Apr. 7-9—Hamilton, Ont.
AMERICAN WATER WORKS ASSOCIATION—CANADIAN SECTION. (Hotel Royal Connaught) Sec., Dr. A. E. Berry, Ontario Dept. of Health, Parliament Bldgs., Toronto, Ont.

Apr. 16-17—Excelsior Springs, Mo.
MISSOURI ASSOCIATION OF PUBLIC UTILITIES. Annual Meeting. (Hotel Elms) Asst. Sec., Jesse Blythe, 101 W. High St., Jefferson City, Mo.

Apr. 26-28—Davenport, Ia.
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS. Spring Meeting. (Hotel Blackhawk) Exec. Asst. Sec., Ernest Hartford, 29 W. 39th St., New York, N. Y.

May 7-8—Bellingham, Wash.
AMERICAN WATER WORKS ASSOCIATION—PACIFIC NORTHWEST SECTION. (Hotel Leopold) Sec., Fred Merryfield, Oregon State College, Corvallis, Ore.

May 10—Chicago, Ill.
NATIONAL FIRE PREVENTION ASSOCIATION. Annual Meeting. (Palmer House) M'ng. Dir., Percy Bugbee, 60 Batterymarch St., Boston, Mass.

May 15-20—New York, N. Y.
WAR CONFERENCES ON PLANNING AND HOUSING. (Hotel Pennsylvania) Organizations of officials, Walter H. Blucher, Executive Director, American Society of Planning Officials, and Hugh R. Pomeroy, Director, National Association of Housing Officials; technicians, Miss Barbara Terrett, Executive Secretary, American Institute of Planners—all of 1313 East 60th Street, Chicago, Ill; and citizens' organizations, Miss Harlean James, Executive Secretary, American Planning and Civic Association, Union Trust Building, Washington, D. C. (Definite dates for each group to be announced later.)

May 21-25—Cleveland, O.
COMMUNITY CHESTS AND COUNCILS, INC. Annual Meeting. (Hotel Cleveland) Exec. Vice-Pres., Allen T. Burns, 155 East 44th St., New York, N. Y.

***Week of May 25—Cincinnati, O.**
AMERICAN INSTITUTE OF ARCHITECTS. Annual Meeting. Exec. Sec., E. C. Kemper, 1741 New York Ave., Washington, D. C.

***May 27-28—Harrisburg, Pa.**
PENNSYLVANIA STATE ASSOCIATION OF TOWNSHIP COMMISSIONERS. Annual Convention. (Hotel Penn Harris) Sec.-Treas., H. A. Fritschman, Upper Darby, Pa.

***June 3-6—Yosemite National Park, Cal.**
CIVIL SERVICE ASSEMBLY OF THE UNITED STATES AND CANADA. Western Regional Conference. Dir., James M. Mitchell, 1313 E. 60th St., Chicago, Ill.

June 8-11—Pittsburgh, Pa.
SMOKE PREVENTION ASSOCIATION. Annual Meeting. (Hotel William Penn) Sec., Frank A. Chambers, 139 N. Clark St., Chicago, Ill.

June 9-11—Albany, N. Y.
NEW YORK STATE CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual Meeting. (Hotel Ten Eyck) Exec. Sec., William P. Capes, City Hall, Albany, N. Y.

June 14-16—Los Angeles, Cal.
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS. Semi-Annual Meeting. (Hotel Biltmore) Exec. Asst. Sec., Ernest Hartford, 29 W. 39th St., New York, N. Y.

June 15-18—Cleveland, O.
AMERICAN WATER WORKS ASSOCIATION. Conference on War Winning Water Works Operations. (Hotels Carter and Statler) Sec., Harry E. Jordan, 22 E. 40th St., New York, N. Y.

June 24-26—Baltimore, Md.
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Convention. (Hotel Lord Baltimore) Sec., Charles E. Clark, Box 217, Wayne, Pa.

June 25-29—Indianapolis, Ind.
NATIONAL EDUCATION ASSOCIATION OF THE UNITED STATES. Annual Convention. Exec. Sec., Willard E. Givens, 1201 16th St., N. W., Washington, D. C.

***July 20-21—Harrisburg, Pa.**
PENNSYLVANIA CHIEFS OF POLICE ASSOCIATION. War Conference. (Hotel Penn-Harris) Sec., F. B. Titus, Lansdowne, Pa.

* First appearance on this page.

OCD Drafts Model Ordinance for Civilian Defense Agencies

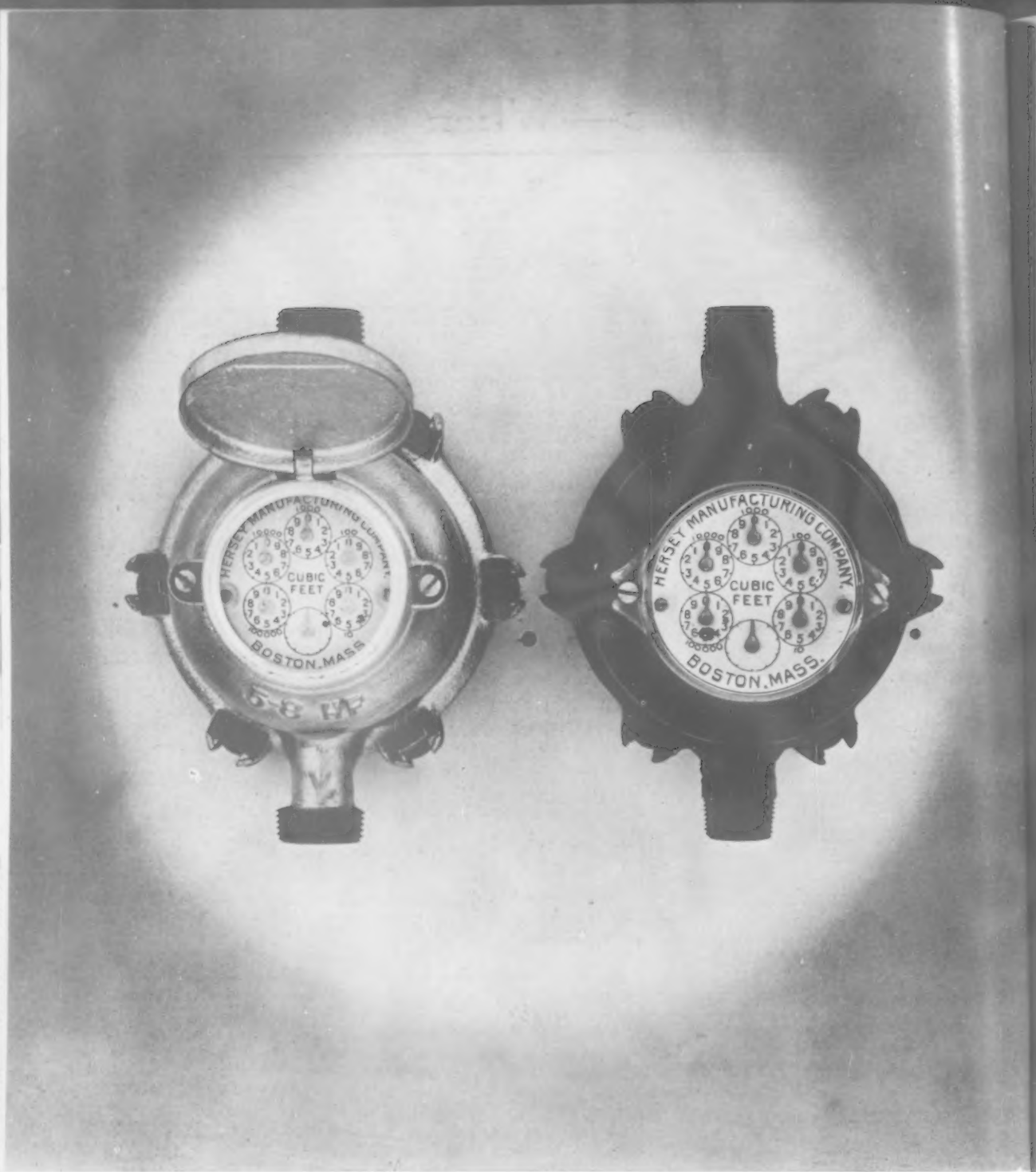
OUTLINES of what the Office of Civilian Defense considers to be the ideal form of local Civilian Defense legislation is embodied in a "Model Ordinance of Civilian Defense Organization" presented for the guidance of municipal authorities.

The model ordinance was prepared at the request of a large number of cities, Defense Councils, and other groups for a recommended guide to creation of adequate local legal authority for Civilian Defense activities. It was explained that the model must be modified to meet local, legal, and factual conditions.

The recommended ordinance gives legal status to the local Defense (or War) Council, the U. S. Citizens Defense Corps, and the U. S. Citizens Service Corps, and makes these three agencies an integral and functional part of the city government. In some states legislation has been enacted specifically conferring upon municipalities the power to adopt a Civilian Defense ordinance of this nature. OCD points out, however, that even in the absence of specific state law, municipalities are authorized under their police power to take necessary steps to preserve public peace, health, and safety.

Under the proposed ordinance, the Defense Council—or "War Council" as it is called in some communities—is the key planning and administrative agency of Civilian Defense. It will direct the activities of the Citizens Service Corps and the Civilian Defense Volunteer Office and act in an advisory and planning capacity with respect to the protective services rendered by the Citizens Defense Corps.

Personnel of the Defense Council would be composed of the Mayor or City Manager as chairman, the Civilian Defense Director as administrative officer, the Chief of Police, the Fire Chief, the Commissioner of Health, the Commissioner of Public Works, the Commissioner of Public Welfare, the City Attorney, the Superintendent of Schools, the Commander of the Citizens Defense Corps, the Executive of the Citizens Service Corps, the Director of the Civilian Defense Volunteer Office, and a number, to be locally determined, of representative persons "engaged in non-governmental activities."



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Municipal and Civic Publications

Please mention THE AMERICAN CITY when ordering

Planning for New York's Future

New York Plans for the Future.—by Cleveland Rodgers. Harper & Bros., New York. 1943. xvi + 293 pp. $3.00.

A biography of New York City which surveys its history, growth, and development, how its inhabitants make a living, its role as landlord, its government and the relation of that government to state, nation, and the world. Commissioner Rodgers emphasizes that comprehensive planning and effective controls over future developments have become imperative in New York and uses the record which he has traced as the basis for planning the better-ordered city of tomorrow. He views city planning as having to do with "the more intimate aspects of community housekeeping" and discusses overcrowding of land, locating and keeping business and industry where they rightly belong, traffic problems, housing, the relation of babies to real estate values, and the coordination of city agencies. The book's readable style and its value to municipal officials and city planners throughout the United States are indicated by the portion of a chapter published in the January issue of THE AMERICAN CITY, pages 59-61.

Federal-Local Tax Arrangements

Payments in Lieu of Taxes.—Research Department, Illinois Legislative Council, Springfield, Ill. 1942. v + 56 pp., offset.

This report, which is intended to provide a factual source of information for the Illinois General Assembly, states its findings on the subjects of federal-state tax immunity and federal ownership of real estate, and describes the great extent to which federal agencies and departments have made payments to local jurisdictions in lieu of taxes under housing (the great majority of which is now war housing) and federal land purchase programs.

Distribution of Tax Burden

Who Does Pay the Taxes?—by Helen Tarasov. The Graduate Faculty of Political and Social Science, New School for Social Research, New York. 1942. xiii + 48 pp. 25c.

A revision of Monograph No. 3—a special study of the direct effect of taxes—published by the Temporary National Economic Committee. Miss Tarasov studies the immediate distributive effects of a tax system, given the income distribution and the people's consumption and saving habits. She then is able to estimate the ratios of taxes borne by each income group to the group's income and to the aggregate tax revenue. This analysis of tax incidence is not an end in itself, but an important first step in determining the economic and social implications of fiscal policy in a given period.

Zoning for Flood-Damage Prevention

Flood-Plain Zoning.—by Ralph B. Wertheimer, Associate Legislative Planning Analyst, Bureau of Agricultural Economics, United States Department of Agriculture. California State Planning Board, Sacramento, Calif. 1942. iv + 43 pp.

This scholarly, well-documented report investigates flood-plain zoning—a measure for preventing flood damage through control of building in areas subject to flood hazard. Makes a brief survey of the flood problems in Los Angeles County, and the steps taken or proposed to prevent flood damage; examines flood problems and the feasibility of various types of building regulation to prevent flood damage in two areas in Los Angeles County; and examines some aspects of zoning and building control that will affect feasibility in any area.

Police Handbooks

Eagle Police Manual.—Edited by Arthur R. Macoskey, Editor, Eagle Library Publications. Contributions by Edward L. Block, Gustav A. Lorenz, M. F. Newsom, Harold S. L. O'Dougherty, Jo Ranson, Thomas S. Rice, Philip Sebold, G. R. Steffens, Wilbur J. Turner. The Eagle Library, Inc., Eagle Bldg., Brooklyn, N. Y. Fourth Edition, 1942. 128 pp. $1.00.

The fourth edition of this manual, with new and revised chapters to conform to the changing times, aims to set forth briefly the most important matters—the necessary skills, duties, and conduct—with which members of the police profession should be familiar. Designed as a reference book for men ambitious to become patrolmen and for experienced police officers studying for promotion. Clear, readable style. Definition of words and terms.

A Manual for Auxiliary Police.—Rhode Island State Council of Defense. 1942. 40 pp.

Purpose of this manual is to provide basic information for study of those subjects necessary in the training of Auxiliary Police for the Police Departments in the state of Rhode Island while they are serving during wartime emergencies. Covers general duties, training, laws of arrest, duties during emergencies, and fatalities.

War Emergency Traffic Standards

Manual on Uniform Traffic Control Devices for Streets and Highways.—American Association of State Highway Officials, Institute of Traffic Engineers, National Conference of Street and Highway Safety. Prepared with the advice and assistance of the War Department and Office of Civilian Defense. 1942. Washington, D. C. xii + 186 pp., offset.

Latest revised edition of this manual, which outlines emergency traffic standards adapted to existing and foreseeable wartime conditions. First division covers standards applicable to wartime conditions when neither blackouts nor dimouts are in effect, and the second division covers special standards required to meet blackout conditions.

Cooperative Housing Bibliography

Cooperative Housing.—by V. J. Tereshtenko and Research staff of the Cooperative Project. Federal Works Agency, Works Projects Administration for the City of New York. Published with the assistance of the Edward A. Filene Good Will Fund, Inc., Boston. Sponsored by the U. S. Bureau of Labor Statistics, Washington, D. C. 1942. xiii + 267 pp., offset. 50c.

This seventh publication of the Cooperative Project is a volume of 512 digests and abstracts of publications regarding cooperative housing, which aims to further cooperative housing studies and make available to students a panoramic picture of the available data. Special effort is made to provide a number of indices so as to enable the reader to find quickly the information desired. A brief introduction discusses the extent and variations of cooperative housing, its record in foreign countries and the United States, and the general problems which it raises.

Planning Bibliography

Publications of the National Resources Planning Board — 1934-1942 — National Resources Planning Board, Washington, D. C. 1942. 5 pp.

A complete bibliography (classified by subjects) of some seventy major publications issued by the National Resources Planning Board and its predecessors. Contains also the related documents which were stimulated by action of the Board or its predecessors, and in which is cooperated, in addition to a series of bulletins, outlines of procedure, and circulars to state, regional, and local planning agencies.

Information for Mayors

A Handbook for Iowa Mayors.—by Jack T. Johnson, Ph.D., Instructor in Political Science, University of Iowa and Orville B. Rogers, J.D., Mayor of Newell, Iowa. University of Iowa, Iowa City, Iowa. 46 pp. 50c.

Practical handbook furnishing town and city officials with desired information about their duties and responsibilities. Outlined summary of every aspect of the office of mayor—administrative, legislative, executive, and judicial—with constant reference to the pertinent sections of the 1939 *Code of Iowa*.

Wartime Problems of Township

War Influences on Township Government.—Edited and published by the Pennsylvania Government Administration Service, 3437 Woodland Ave., Philadelphia, Pa. 1942. 100 pp., offset.

1942 Yearbook of the Pennsylvania State Association of Township Commissioners containing the speeches delivered at its 1941 Convention at Philadelphia on the subjects of civilian defense and the influence of war on municipal finance and police administration. Also contains statistical tables and a complete list of township officers.

Tennessee Planning Report

Community Planning in Tennessee.—Tennessee State Planning Commission, Nashville, Tenn. 1942. v 80 pp., offset.

A progress report for the fiscal year July 1941-June 1942, which reviews and appraises the local planning activities of communities and regions of Tennessee with which the State Planning Commission is cooperating, and describes the legislative background of local planning. Deals in particular with community planning in the Tennessee Valley, in Northeast Tennessee, and in Clarksville and Montgomery County.

Various Peace Proposals

Peace Plans and American Choices.—by Arthur C. Millspaugh. Brookings Institution, Washington, D. C. 1942. vii + 107 pp. $1.00.

Brief and simple presentation of essential features of about a dozen typical proposals for peace and world order and of the arguments for and against each one. The purpose is to aid the citizen to get a broad view of the problem and to make a reasoned choice.

Beveridge Report

Social Insurance and Allied Services.—Report by Sir William Beveridge. American Edition reproduced photographically from the English Edition and published by arrangement with His Majesty's Stationery Office. The Macmillan Co., New York. 1942. 299 pp.

Report issued by the distinguished English economist and government planner, Sir William Beveridge, outlining a comprehensive program for a unified and expanded social security program—covering all citizens, without upper income limit, but with regard to their way of life, providing for children's allowances, maternity grants, widowhood and separation payments, comprehensive medical treatment, rehabilitation and funeral expenses, in addition to retirement pensions, unemployment, and training benefits. Benefits are to be higher and social insurance is to be supplemented where necessary by national assistance. There are to be simple contribution conditions, and the whole program is to be administered by a single agency—a Ministry of Social Security. Underlying thesis of the report is the firm conviction that the abolition of want is a practicable post-war aim and that it is essential to plan for peace during war.

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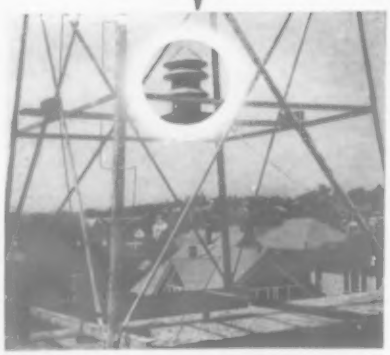

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New Sources of Municipal Revenue

Non-Tax Revenues for Municipalities.—Municipal Finance Magazine, February, 1943. 50c.

This issue of Municipal Finance is concerned with the necessity and desirability of supplementary taxes. It has articles on the various sources of revenue (such as licenses, service charges, franchise taxes, etc.) employed in different cities.

Agency for Port Development

The Port of New York Authority.—by Erwin Wilkie Bard, Ph.D., Brooklyn College. 1942. Columbia University Press. x + 352 pp. $3.50 from THE AMERICAN CITY.

An institutional biography written about the Port of New York Authority—the first agency in the United States to be created by compact with administrative jurisdiction in two states. Describes and analyzes the relations of the Authority to the community, its contributions to the various problems with which it has dealt, and the conclusions which may be drawn from its experience. The first part deals with the Comprehensive Plan, drawn up in 1921 for the unification of the port, and the problems arising under it, while the second part is concerned with the Port Authority as the agency responsible for interstate bridges and tunnels.

Structural Engineering

Stresses in Framed Structures.—Editors in Chief, George A. Hool, former Professor of Structural Engineering, University of Wis., and W. S. Kinne, Professor of Structural Engineering, University of Wis. Revised by R. R. Zipprodt, Principal Civil Engineer, Office of the Quartermaster General, Washington, D. C., and George C. Ernst, Associate Member, American Society of Civil Engineers. Second Edition, 1942. McGraw-Hill Book Co., Inc., New York. xiv + 642 pp. $5.00.

Second edition of one of the six volumes in the Structural Engineers' Handbook Library, prepared for the use of the practicing engineer and also for the student who wishes to consult a reference work which covers thoroughly modern civil engineering structures. Technical discussion of the general theory of the subject and of such specific subjects as roof trusses, bridge trusses, lateral trusses and portal bracing, deflection of trusses, redundant members secondary stresses, statically indeterminate frames, wind stresses in high buildings, and rectangular tower structures.

Information on Crime

Crime.—Analysis by Thorsten Sellin. Teaching Aids by Paul R. Busey, Bloom Township High School, Chicago Heights, Ill. National Council for the Social Studies, National Association of Secondary-School Principals, Departments of the National Education Associatino, 1201 16th St., N. W., Washington, D. C. 1942. 64 pp. 30c.

Analysis of the causes and extent of criminal behavior, its prevention and treatment, intended as a storehouse from which teachers may draw information based on recent research findings. Also contains suggested methods from which to build a teaching unit to be used in a specific class. Not intended for pupil reading, but as a convenience for teachers.

Air Raid Protection for Homes

Bombs, Buildings, and Shelters.—by William H. Hayes, Assistant Professor of Architecture, Columbia University. Columbia University Press, New York. 1942. 83 pp., 60c.

Practical, illustrated manual which explains to the householder, in non-technical terms, the methods by which he can evaluate and provide air raid protection for his home and the people in it. Discusses personal risk and types of bombs, the relation of construction to air raid protection, and the types of shelters that have been and may be used. Supplements most of existing literature on the subject, beginning where community and official air raid precautions end.

Traffic Control and Planning

Town Planning and Road Traffic.—by H. Alker Tripp, C.B.E., Assistant Commissioner of Police, Scotland Yard. Edward Arnold & Co., London. Longmans, Green and Co., Inc., New York. 1942. 118 pp. $3.25 from THE AMERICAN CITY.

The object of this book is to point out that the science of traffic control is a vital element in the science of town and country planning. The author believes that nothing should be attempted by regulation that can be achieved by planned layout and develops the "precinct" idea—namely, that series upon series of local roads should be created which would be completely isolated from the main traffic flows. His chief concern is with the pursuit of safety, and he stresses the importance of putting traffic matters in the hands of traffic specialists. The problem is seen as one of adaptation, and much practical illustration, based on years of traffic experience, is used.

Parks

Municipal and County Parks in the United States, 1940.—A Report of a Study conducted by the National Park Service with the cooperation of the American Institute of Park Executives and the National Recreation Association under the Direction of George D. Butler. National Recreation Association, 315 Fourth Ave., New York. 1942. viii + 73 pp.

A comprehensive study of municipal and county parks, the fourth of a series started in 1925 which records the expanding park acreage and the increase in the diversity and number of park recreation facilities and structures. Discusses such subjects as park workers, improvements, expenditures, funds, costs of operating, and park administration. Numerous, detailed statistical tables and charts.

Transportation and War Housing

Transportation Problems and War Housing.—Division of Urban Studies, Bulletin No. 9. National Housing Agency, Washington, D. C. 1942. 15 pp., mimeo.

This bulletin has consolidated and brought up to date the material in Bulletins 1, 5, and 7 issued by the Division of Urban Studies, on transportation in relation to war housing. Outlines and summarizes present transportation conditions and problems and measures connected with war housing. Also describes briefly the agencies concerned with local passenger transport.

Regulating Subdivision Development

The Subdivision of Land.—by Robert E. Merriam. American Society of Planning Officials, 1313 E. 60th St., Chicago. 37 pp., mimeo. 50c.

Concise analysis of the problem of controlling the subdivision of land in the interest of the public by means of intelligent planning implemented by administrative authority. Discusses the role of the planning agency in regulating subdivision development, the basic legal framework of subdivision control, supplementary regulations, the reclaiming of the old, unused subdivision, some problems of design, and the benefits from subdivision regulation.

War and Post-War Nutrition

Nutrition and Food Supply: The War and After.—Edited by John D. Black, Ph.D., Henry Lee, Professor of Economics, Harvard University. The Annals of the American Academy of Political and Social Science, January, 1943. Philadelphia. vii + 279 pp.

The object of this issue of the Annals is to present enough material relating to the subject of nutrition in the war and after so that the reader will get well acquainted with it and develop a compelling interest in following future developments in it. Treatment is given to the technological phases of nutrition, with malnutrition as the focus of interest. There are short sections on food consumption, distribution, production, and processing.

Building Standards

Two publications of the National Bureau of Standards, United States Department of Commerce, Washington, D. C., on Building Materials and Structures. 1942. United States Government Printing Office, Washington, D. C.

Recommended Building Code Requirements for New Dwelling Construction, with special reference to war housing. ii + 86 pp.

A series of recommended requirements for use in building codes. These requirements apply to single- and two-family houses and to multiple dwellings of limited height, and cover fire resistance, light, and ventilation, exits, strength of construction, and chimneys and fireplaces.

Fire-Resistance Classifications of Building Constructions. ii + 70 pp.

Presents a classification of building construction based on essential features having a bearing on the restricting and retarding effect on fire offered by the different types. The classes within each type are differentiated by the degree of fire resistance of structural members. Data included from surveys of combustible contents of buildings and from fire tests of building constructions and materials.

Cement Standards

A.S.T.M. Standards on Cement.—Prepared by A.S.T.M. Committee on Cement. Published by the American Society for Testing Materials, 260 S. Broad St., Philadelphia, Pa. 1942. iv + 119 pp. $1.35.

The sixth edition of this annual compilation by the American Society for Testing Materials presents in convenient form the various standard and tentative standard specifications, methods of chemical analysis, and methods of physical tests pertaining to cement. Also includes information on analytical balances and weights, the Manual of Cement Testing, and a list of selected references on portland cement.

Wartime Juvenile Delinquency

Juvenile Delinquency in the War Period.—The Journal of Educational Sociology, October 1942. 128 pp. 35c.

This issue of the Journal of Educational Sociology, prepared in cooperation with the members of the Society for the Prevention of Crime, consists of a series of articles on the problem of wartime juvenile delinquency. Special topics such as wartime juvenile delinquency in England, psychopathic personality and crime, and Negro delinquency in New York, are included.

A Personnel Program

Municipal Personnel in Massachusetts.—Massachusetts Federation of Taxpayers Associations, Inc., 11 Beacon St., Boston, Mass. 1942. 34 pp., offset.

A pamphlet describing in simple terms a comprehensive personnel plan—which in effect provides a codification of salaries—for the Massachusetts municipality, and coordinating some important legal and general information relating to municipal employees and their salaries.

War Film Lists

A List of United States War Information Films.—Bureau of Motion Pictures, Office of War Information, Washington, D. C. 1942. 20 pp., offset.

A list of films on the armed forces, aviation training, civilian defense training, industrial training, and informational films from various departments and agencies, with instructions on how to obtain them.

Films for America at War.—Prepared for the Committee on Motion Pictures in Education, American Council on Education, Washington, D. C. 1942. ix + 97 pp.

Presentation of appraisal and content material on seventy-six films covering the subjects of war production and civilian participation in war effort, health, nutrition, first aid, and training, and reported to be useful in schools, colleges, and community programs.

Lunga Airport, Guadalcanal Island Released U. S. Navy Photograph

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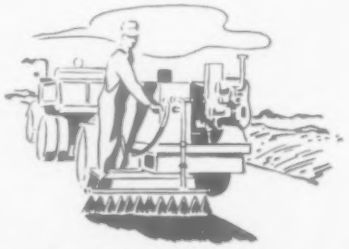

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Improving Central Traffic in N.Y.C.

Traffic and Parking Study.—Regional Plan Association, 400 Madison Ave., New York, 1942. xxiii + 144 pp. $4.50.

This study treats traffic and parking as a single problem and embraces all the composite elements of that problem in relation to the particular traffic and terminal needs of the core of the New York Metropolitan Region. The resulting report, which represents the views of a large majority of the competent officials, businessmen, and technicians who are concerned with the city's transportation problems, points out that the solution of the central city traffic problem is more one of administration and organization of people than of a large-scale public building program. It outlines recommendations for a program of revised laws and administrative action and preparation of plans for new physical facilities.

Manpower Problem

Where Can We Get War Workers?—By Sanford Griffith. Public Affairs Committee, 30 Rockefeller Plaza, New York. 1942. 32 pp. 10c.

Popular, factual pamphlet presenting the results of a cross-section survey of the manpower situation in Baltimore, as of September 15, 1942. Concludes that there is no serious shortage in the local labor supply but a grave lack of training and placement policies. Emphasizes need for intensive vocational or technical training in schools or within industry, full use of women, Negroes, and other minority groups, and control of labor migration. Not intended as an indictment of Baltimore but merely as a "warning of what the country faces unless a more determined effort is made to coordinate and speed manpower placement."

Housing and Community Planning

The City, The Housing and The Community Plan. By Hugo Leipsiger, University of Texas, Austin, Texas. 1942. 37 pp.

An attractive, illustrated pamphlet which discusses many phases of the complex problems involved in housing and community planning, and shows that these problems can only be solved by a concerted and serious effort on the part of all concerned with esthetics and engineering as well as the physical and social sciences.

Post-War Municipal Improvement Plan

A Long Range Improvement Program for City of Madison, Dane County, Wis. Prepared under the Direction of James R. Law, Mayor, for City Council. 1942. 52 pp.

Assembled and tabulated prospectuses of needed improvement projects submitted by all the departments and committees of the Council of the city of Madison, Wis. Estimates, on the basis of studies made of various factors influencing the city's growth and finances, the amounts that are expected to be available for future improvements, and makes recommendations for a long-range improvement program. Program intended to be flexible and subject to annual revision.

State Legislation

Current Ideas in State Legislatures, 1940-1941.—Compiled by Margaret W. Stewart, State Law Index, Legislative Reference Service, Library of Congress. United States Printing Office, Washington, D. C. 1942. viii + 146 pp.

Index of laws passed by state legislatures in 1940 and 1941, with only occasional inclusion of bills introduced. No attempt made to examine with any degree of thoroughness bills not enacted. Laws are classified under topics of the national defense emergency, industry and business, professions, trades, and occupations, labor, health and welfare, administration of justice, social and police measures, education, conservation and agriculture, state and local government, and property rights.

Other Reports Received

State Liquor Monopoly or Private Licensing?—By Glenn D. Morrow and Orba F. Traylor. Bureau of Business Research, College of Commerce, University of Kentucky. Legislative Council, Commonwealth of Kentucky. 1942. 80 pp.

Segregation and Classification of Prisoners.—Legislative Briefs. State Legislative Bureau. Department of Library and Archives, Phoenix, Ariz. 1942. 15 pp. mimeo.

Family Mobility in Houston, Texas, 1922-1938.—By Carl M. Rosenquist and Walter Gordon Browder. Bureau of Research in the Social Sciences, University of Texas, Austin, Texas, with the assistance of the Work Projects Administration. 1942. 96 pp.

Jurisdiction Over Juvenile Offenders.—Report Pursuant to Proposal 156 Sponsored by Senator E. R. Peters and Representative Ora D. Dillavou. Research Department, Illinois Legislative Council, Springfield, Ill. ii, 30 pp.

Annual Summary of Motor Vehicle Accident Fatalities, 1941, Part 1.—Department of Commerce, Bureau of the Census, Washington, D. C. 1942. 26 pp., offset.

Summary of Motor Vehicle Accident Fatalities, First Quarter—1942.—Department of Commerce, Bureau of the Census, Washington, D. C. 1943. 20 pp., offset.

How the Prisons Can Help the War Effort.—by Sam A. Lewisohn. Address delivered at Luncheon Meeting, 72d Annual Congress of American Prison Association, Asheville, N. C., October 20, 1942. 9 pp.

U. S. Government Publications and the War.—By Carl H. Melinat, American Library Association, Chicago, Ill. 1943. 175 pp. 25c.

Governmental Debt in the U. S.: 1942. Bureau of the Census, Washington, D. C. 15 pp., offset.

COOK COUNTY, ILL.—Annual message of Clayton F. Smith, President, Board of Commissioners and Board of Forest Preserve Commissioners, for fiscal year 1943. 184 pp.

DETROIT, MICH.—An Advance-Plan Program for Detroit. Report to Mayor Edward J. Jeffries, Jr., by the Capital Improvement Program Committee, December, 1942. 110 pp., mimeo.

KANSAS CITY, MO.—"Your City Government." Annual Report, for fiscal year ended April 30, 1942. 48 pp.

LOS ANGELES, CAL.—A Report to Hon. Fletcher Bowron, Mayor of Los Angeles, presented by Remsen D. Bird and William H. Schuchardt for the City Planning Commission. 1942. 13 pp. (See page 5 of this issue.)

NEW YORK, N. Y.—Consolidated Annual Report, Comptroller, for fiscal year 1941-1942. xiv 482 pp.
—Construction and Restoration of Monuments, Memorials and Historic Buildings. Department of Parks. 1941. 36 pp.

NEW YORK.—Annual Report, Regional Plan Association, 1942. 18 pp., offset.
—Report of the State Commissioner of Housing to the Governor and the Legislature. 1942. 28 pp.

OREGON.—Auditing Policies and Practices in Oregon Cities. Finance Bulletin, No. 5, 1942. Bureau of Municipal Research and Service, University of Oregon, cooperating with the League of Oregon Cities and the Oregon Finance Officers' Association, Eugene, Ore. 1942. 13 pp., mimeo.
—Comparative Tax Rates in Oregon Cities, 1942-1943. Bulletin No. 51. Compiled by Bureau of Municipal Research and Service, University of Oregon cooperating with The League of Oregon Cities and the Oregon Finance Officers' Association, Eugene, Ore. 1942. 10 pp., mimeo.

QUEBEC.—Statistical Year Book, 1941. Published by authority of the Hon. Oscar Drouin, C.R., Minister of Municipal Affairs, Trade and Commerce. 1942. xxxiii + 461 pp.

ROCHESTER, N. Y.—"Your City Government," Annual Report, for year ending December 31, 1941. 6 pp.

SOUTH CAROLINA.—Annual Report, State Planning Board, for fiscal year 1941-1942. 40 pp.

SYRACUSE, N. Y.—Annual Report, Syracuse Housing Authority, 1942. 23 pp.

TENNESSEE.—"Assessment of Property in Tennessee," by Vernon G. Morrison. Report No. 6, Tennessee Municipal League, Nashville, Tenn. 1942. 32 pp., mimeo.

TRENTON, N. J.—"Survey of Need for Day Care Among Children of Working Mothers in Trenton." State of New Jersey, Department of Public Instruction. Published by Division of Statistics and Research, Department of Institutions and Agencies, Trenton. 1942. 13 pp., mimeo.

What can other cities learn from New York's approach to planning?

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NEW YORK PLANS FOR THE FUTURE

by Cleveland Rodgers

Member, New York City Planning Commission
Former Editor, Brooklyn Eagle

How do babies affect real-estate values?

How do New Yorkers make their livings, and how does it affect their government?

What are New York's plans for the future?

THIS BOOK GIVES YOU THE COMPLETE PICTURE

Here is a book that every New Yorker, every person concerned with city planning in or out of New York will find as dramatically absorbing as it is important and enlightening.

Here for the first time is an overall picture of the world's largest city seen against the background of its entire economic and political history, and related to national and international planning efforts.

The larger problems of municipal government and city planning together with such difficulties as traffic congestion, building regulation and zoning, housing, park development, etc., are set forth in their modern perspective. Trends are analyzed to provide a working blueprint of the city of the future, and the lines of development are explored in detail. The result is a brilliant biography of a dynamic city—yesterday, today and tomorrow.

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IDEAS that are helping to solve tax accounting problems!

IDEA — If a consolidated tax rate is used—instead of several rates applied to the same valuation—computations will be minimized and accuracy and efficiency increased.

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DETROIT, MICHIGAN

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MANUFACTURING FOR WAR

The manufacture of aircraft equipment for the Army Air Forces, and the manufacture of Burroughs accounting and figuring equipment for the Army, Navy, U. S. Government and the nation's many war activities, are the vital tasks assigned to Burroughs in the Victory Program.

Burroughs

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

New portable fire-fighting pump tank.

New Type Tank for Incendiary Bombs

The American-La France-Foamite Corp., Elmira, N. Y., has designed a new pump tank with a reduced amount of critical materials to meet the latest requirements of the Office of Civilian Defense for controlling the magnesium type incendiary bomb fires.

This new pump tank produces a straight stream instead of a spray. It is made in 2½- and 5-gallon sizes. It has an over-all air chamber producing a steady pressure and a more constant stream. It has a range of from 30 to 40 feet and can be readily transported up ladders, over roofs, and to points of difficult access.

Michigan Alkali and J. B. Ford Consolidate

On January 1, 1943, the Michigan Alkali Co. and the J. B. Ford Co., both of Wyandotte, Mich., combined their interests to form the Wyandotte Chemicals Corporation. This action brings together two companies, one a basic chemical producer, and the other the world's largest manufacturer of specialized cleaning materials.

Contracts and commitments of Michigan Alkali Co. and the J. B. Ford Co., in force at the end of the year 1942, will be executed without interruption by the Wyandotte Chemicals Corp., and customer contracts will be maintained without interruption by the consolidated sales departments of the two companies.

Both companies were established in Wyandotte by Capt. John B. Ford, who was an outstanding pioneer in the chemical industry.

H L. Brigham Dies— N.E.W.W.A. President

Harold L. Brigham, President of the New England Water Works Assn., died at the Thorndike Hospital, Brookline, Mass., on January 8 after an illness of eight weeks.

Mr. Brigham was superintendent for the Marlboro, Mass., Water Department. He was born in that city on February 11, 1893. After taking special courses at the Massachusetts Institute of Technology, he entered the employ of the municipal water and sewer department in 1922, and has been superintendent since 1932. He was a keen student of water-works engineering problems and was recognized as an authority throughout the area.

He is survived by his widow, four daughters, and a brother, all residing in Marlboro.

Krug Heads New WPB Post

War Production Board Chairman Nelson has announced the creation of the Office of Power Director with the appointmetn of J. A. Krug as its head to take over complete responsibility within the War Production Board for electric power, gas, water, and communication.

All War Production Board orders affecting the utilities will be issued by the Power Director. Pursuant to determinations of the Requirements Committee, his authority includes approval of projects, allocation of materials and critical components within the power and communications fields, and allocation and rationing of utilities services.

The Office of Power Director will have the status of a Claimant Agency before the Requirements Committee on a level with the Army, Navy, Office of Rubber Director, and others. The Office also will be the liaison between WPB and other government agencies which are interested in the utilities under its jurisdiction.

For WAR EMERGENCIES

VALVES
HYDRANTS
AND WATERWORKS ACCESSORIES

M & H products, including pipe line accessories, are well known for high quality of material and expert workmanship. They are made according to standard specifications and have been used for many years throughout the country. Write for Catalog No. 34.

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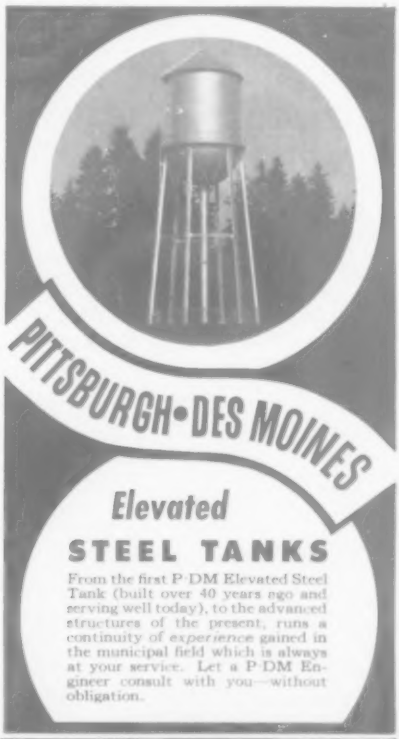
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Elevated
STEEL TANKS
From the first P-DM Elevated Steel Tank (built over 40 years ago and serving well today), to the advanced structures of the present, runs a continuity of *experience* gained in the municipal field which is always at your service. Let a P-DM Engineer consult with you—without obligation.
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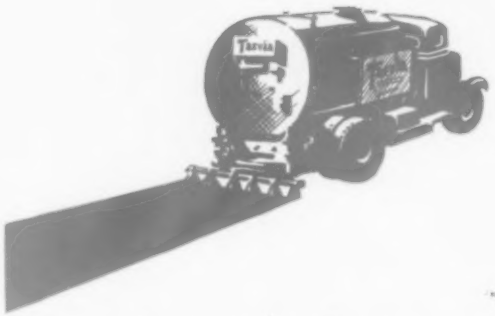

There's a right type of Tarvia . . . and a right Tarvia method . . .

FOR ALMOST EVERY TYPE OF ROAD MAINTENANCE AND REPAIR!

THIS year, more than ever, it is essential to keep America's unmatched highway system functioning effectively and efficiently in all weather. During wartime existing roads must be ready—for safe transportation of military men and supplies, vital farm products and industrial workers . . . for any emergency.

That is why road maintenance and repair loom so important in every 1943 highway program. That is why, too, Tarvia is in such demand by experienced road engineers and officials who must "make a little do the work of a lot."

With Tarvia it is possible to maintain and repair almost any type of pavement . . . quickly, economically, dependably. The Tarvia field man can show you how to save money and time. He will help you select the right grade of Tarvia and the right Tarvia method to solve every maintenance and repair problem that faces you. Wire or write our nearest office.

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ALLIED CHEMICAL & DYE CORPORATION
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ONE OF AMERICA'S GREAT BASIC BUSINESSES

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Gardner-Denver Mgr. Navy Lieutenant

B. P. Spann, for the last eight years Advertising Manager of the Gardner-Denver Co., Quincy, Ill., recently received a commission as Lieutenant, Junior Grade, in the Supply Corps of the U. S. Naval Reserve, and is now stationed in Philadelphia. On leave of absence from the Gardner-Denver Co., Lieutenant Spann will resume his duties as advertising manager when the war is over.

B. P. Spann

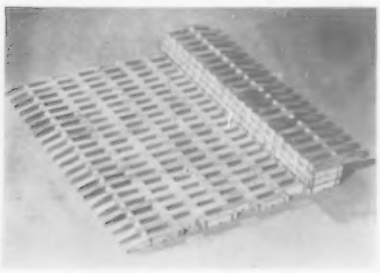
Autocar Names New Vice-President

Edward F. Coogan, sales manager since 1936 of The Autocar Co., motor truck manufacturers of Ardmore, Pa., has been appointed a Vice-President. As such, he will become more directly concerned with the company's expanding service requirements for military vehicles which now engage the company's total productive capacity. He will, however, continue his former sales supervision of commercial business through The Autocar Company's coast-to-coast system of direct factory branches and dealers.

Flexible Wood Link Mat Saves Essential Rubber

A new type of mat has been announced by the American Mat Corp., Toledo, Ohio, to replace the familiar rubber mat that the war has forced off the market. This mat is substantially constructed of wood lengths. It is light in weight and can easily be folded or rolled for handling. It is one inch thick and comes in stock sizes as large as 30 x 44 inches. It can be obtained in special sizes if required.

To help in conserving the life of the mat, through proper care, the company has set up a special service and advisory department for the duration and is furnishing detailed literature covering the best maintenance.



A new wood link mat

E. C. Fink Mack Truck President

E. C. Fink, President and chairman of the board of Mack Trucks, Inc., Long Island City, N. Y., died in New York City on January 1 following a heart attack. He was 62 years old.

A pioneer in the truck industry, Mr. Fink had been an officer of the company since its organiaztion in 1911 following a consolidation of the Mack Bros. Motor Car Co., the Hewitt Motor Co., and the Sauer Motor Truck Co. He was for many years vice-president in charge of production at the company's plants in Allentown, Pa., Plainfield, N. J., and New Brunswick, N. J. In this capacity he supervised the development of Mack truck, bus, and fire apparatus models over a period of years that saw far-reaching changes in the design and construction of motor vehicles and in the extension of their use. Mr. Fink was elected president and chairman of the board in January 1937, succeeding the late Charles Hayden.

As head of Mack Trucks during the present war, he was the guiding hand in the design of the specialized motor trucks Mack is supplying the armed forces and in the development of the huge Mack-built transmissions now used in many of the Army's 30-ton tanks. Shortly before his death Mr. Fink had the gratification of seeing all three Mack plants presented with the Army-Navy "E" award for excellence in war production.

VENTURI METERS

Type M Register-Indicator-Recorder

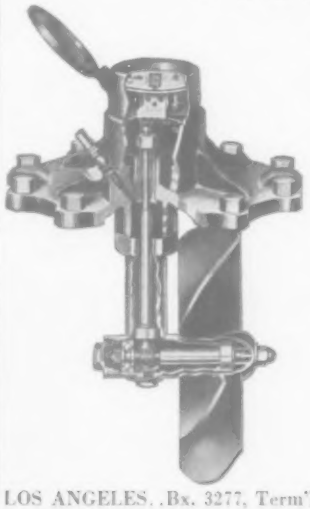
Water Works men have so long relied upon Builders Venturi Meters for accurate records of main line flow that we suspect they sometimes just take it for granted that they know all about them!

Do you? Have you the latest bulletins on file? Look and see; if you haven't Bulletin 293 B, we suggest you write Builders-Providence, Inc., 9 Codding Street, Providence R. I., and ask for a copy.

Sincerely yours,

BUILDERS
WATER AND SEWAGE WORKS
Equipment

SPARLING
MAIN LINE
WATER METERS
From ICELAND to HAWAII



In training camp and defense plant; in municipal waterworks and industrial operation, the SPARLING propeller-type Meter is measuring flows with consistent accuracy!

At left, the meterhead is lifted from the line and "cut away" to show the DIRECT ACTION from the propeller to Totalizer.

Indication and Recording are optional.

Bulletin 308 will be sent upon request.

SPARLING

LOS ANGELES..Bx. 3277, Term'l Annex — 622 Broadway.....CINCINNATI
CHICAGO....3104 South Michigan Ave. — 101 Park Avenue.....NEW YORK
BOSTON.....6 Beacon Street

WARS CAN'T WAIT ON WEATHER!

THAT'S why construction of factory buildings, airport runways, or concrete gun emplacements must continue through cold weather.

True, concrete hardening slows up as temperatures drop, but you can compensate for this natural slowness by adding calcium chloride to portland cement concrete. Engineers recognize this value and specify calcium chloride for speed and safety in concrete construction.

Reports of tests made at the National Bureau of Standards and other data, practical methods, etc., are contained in the new manual, "Early Strength Concrete." Write now for Bulletin 28 to the Calcium Chloride Association, 4145 Penobscot Building, Detroit, Michigan.

The Army-Navy "E" awarded to the Springfield plant of the Allis-Chalmers Mfg. Co. is displayed by employees and officials of this company and the Army representatives.

A-C Tractor Plant Gets Army-Navy "E"

The Army-Navy "E" for excellence in production achievement has been awarded to the Springfield, Ill., plant of the Allis-Chalmers Mfg. Co. This is reported to be the first such award for tractor production.

In presenting the banner, Col. John S. Seybold, Chief of the Procurement Section, Supply Division Office, Washington, D. C., emphasized the importance of tractors in today's mechanized war.

"A tractor was the first piece of equipment to land at Guadalcanal," said Col. Seybold. "Tractors will always be the first to land in similar operations. They are the mule power of today's army." He pointed out that tractors make way for the tank and armored car, prepare and repair air fields, act as prime movers for heavy guns, build roads over which supplies and ammunition are moved.

Walter Geist, Allis-Chalmers' President, gave the welcoming address. W. A. Roberts, Manager of the company's Tractor Division, was master of ceremonies.

Cold Weather Asphalt Construction

Hot-laid asphalt mixtures may be laid regardless of freezing weather, according to information issued by The Asphalt Institute, 801 Second Ave., New York. This is possible because no curing period is required. The base should be firm and if frozen should not contain so much moisture as to become unstable upon thawing.

Newly prepared specifications of the Institute cover both winter and summer work, but for cold weather construction the following precautions are added:

1. Mixing temperatures shall be adjusted to the air temperature prevailing so that, as spread, hot-laid asphaltic mixtures are in the condition most favorable for immediate compaction. Mixing temperatures, however, shall in no case be higher than 325° F.

2. When the mixtures are laid during an atmospheric temperature below 40° F., loads shall be delivered continuously in insulated trucks so as to permit immediate consolidation and compaction after spreading.

3. Spreading shall be accomplished by mechanical means except for the isolated areas which cannot be reached by the spreading machine.

4. Rolling equipment shall be provided in such extra number as will insure rapid consolidation and compaction immediately after spreading, and to develop required density.

Herrington Director of Army Ordnance Assn.

The Army Ordnance Assn. has paid tribute to one of the foremost exponents of American military preparedness in time of peace, as well as in time of war, by electing A. W. Herrington, Chairman of the Board of Directors of the Marmon-Herrington Co., Indianapolis, Ind., as a director of the national association.

Herrington struggled for years to stimulate a greater interest in mechanizing our armed forces. Many of the vehicles that he designed are now being produced in huge numbers for the U. S. Army, Marine Corps, and Coast Guard and are seeing active service here and abroad.

Herrington is a past president of the Society of Automotive Engineers, a governor of the Society of American Military Engineers, a director of Aviation Corp., a director of the Gar Wood Co., a fellow of the American Geographical Society, and a member of other military and civil institutions. He was technical adviser to President Roosevelt's Economic Mission to India in 1942.

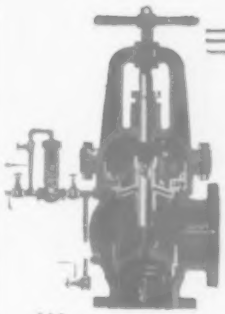
Peerless Pump Names Acting Chief Engineer

Dan R. Rankin has recently been named Acting Chief Engineer for the Peerless Pump Division—Food Machinery Corp., 325 West Ave., 26, Los Angeles, Calif. He has been associated with Peerless for the past five years previously serving as assistant to the Chief Engineer.

D. R. Rankin

He is credited with many developments and innovations in designs of Peerless Pumps, and since the start of the war has devoted much of his time to solving engineering problems attendant upon the adaptation of Peerless Pumps to new applications and use in many varied fields.

Continuous research in the field of hydraulics is being carried in the recently enlarged Peerless laboratory under Rankin's direction.



TRIPLE ACTING NON-RETURN VALVE

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This valve will automatically cut in a boiler whenever its pressure equals line-header pressure; it will isolate a boiler automatically whenever its pressure, from any cause, is lower than line-header pressure; and it will prevent steam flow from the boiler in event of sudden drop of line-header pressure below the boiler pressure, by means of differential shot pilot valve functioning.

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Furnished in angle, globe and elbow patterns, sizes 2½" to 12"; also available in larger sizes, as well as in the Cross pattern.

Write for Specifications

GOLDEN-ANDERSON VALVE SPECIALTY CO.

Fulton Building Pittsburgh, Pa.

Jeffrey

FOR A COMPLETE LINE OF SEWAGE AND WATER-TREATMENT EQUIPMENT . .

Bar screens (mechanically-cleaned)
Chemical feeders (electric vibrating)
Flocktrols (controlled flocculation)
Grit washers
Grit collectors
Primary and secondary sludge collectors
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Screenings grinders
Scum removers
(All Patented)

Jeffrey engineers have had years of experience—have made many installations—can offer technical data on both equipment and plant design. Write

The Jeffrey Mfg. Co.

970-99 NORTH FOURTH STREET
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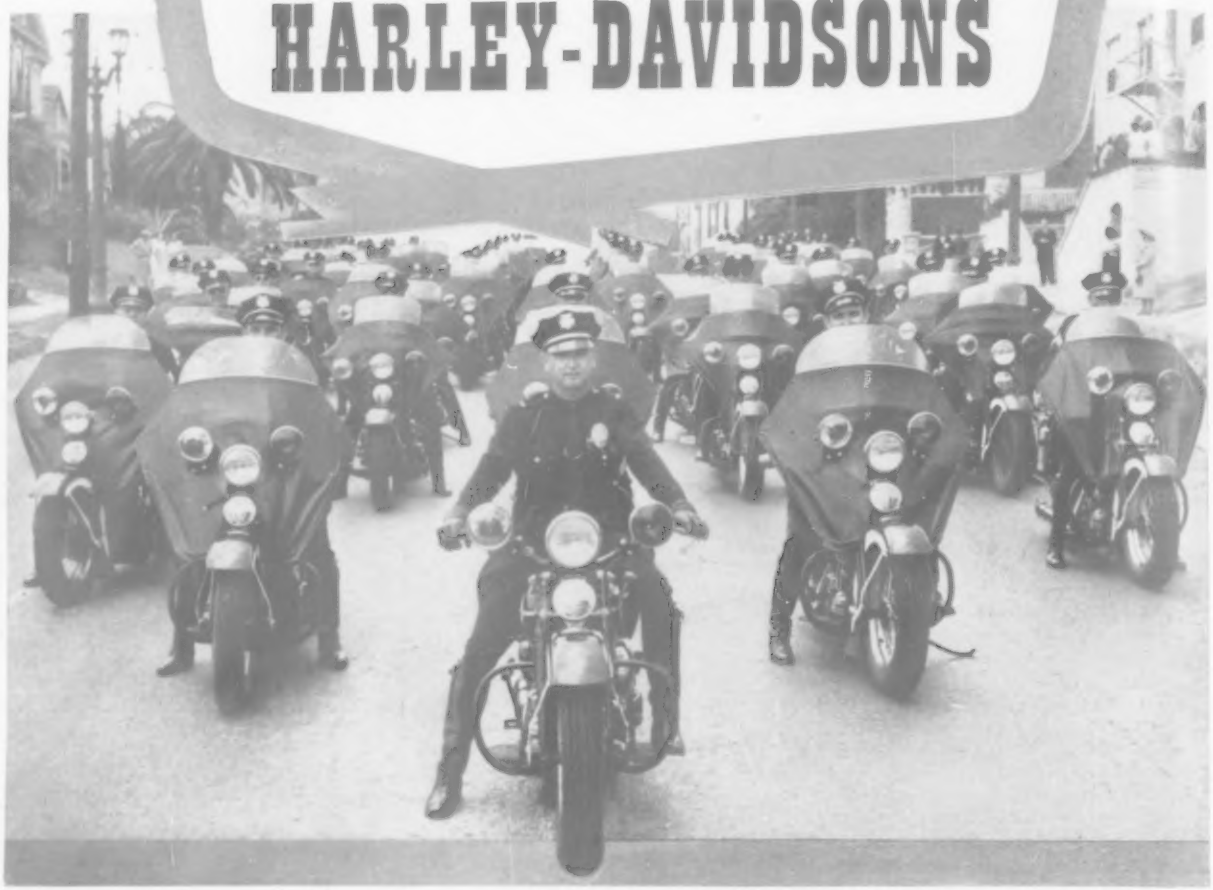
LOS ANGELES SETS NEW RECORDS WITH 201

HARLEY-DAVIDSONS



FEW cities in America have more defense plants to guard—or bigger throngs of defense workers crowding its streets. Yet in 1942, Los Angeles raised its traffic safety record from a low rating among large cities, to a place in the very top ranks! All praise to the Traffic Division of the Los Angeles Police Department and its commanding officers. Yes, and recognition of the men of its motorcycle squadrons! That Los Angeles used 181 solo Harley-Davidsons and 20 Servi-Cars in establishing its great record is continued proof of the dependable performance these motorcycles are providing for more than 3600 American communities.

HARLEY-DAVIDSON MOTOR CO., Milwaukee, Wisconsin

The Indian Fire Pump

Portable Pumps Fight Incendiary Bombs

Since developments by the enemy have resulted in the use of new, more highly destructive incendiary bombs with explosive charges in them, persons entrusted with civilian protection have shown greater interest in an improved, more efficient type of fire pump and extinguisher.

These new bombs are reported to explode at any time during their burning and have been known to be fatal at distances as great as 140 feet. Officials of the OCD recommend approaching them cautiously, utilizing protective covering and spraying them with a solid stream of water.

The Indian fire pump made by D. B. Smith and Co., Utica, N. Y., affords a practical solution to the problem. It will throw a solid stream of water a distance of 30 to 50 feet. With a nominal amount of protection, this type of equipment should go a long way toward controlling the menace and relieving the heavy loads that will be thrust on fire departments during emergencies. It is rated by authorities as one of the most effective extinguishers for general fire fighting in homes, buildings, factories, etc.

Water-Works Data

An unusual amount of valuable water-works data are included in the new bulletin prepared by Layne & Bowler, Inc., Memphis, Tenn., entitled "Layne Vertical Turbine Pumps." These data include the interesting method of determining field pumping head and the highly valuable orifice method which measures the flow of water discharging from a pipe horizontally into the open area.

The bulletin also gives a complete description of the vertical turbine pumps featured by this company.

Camouflage for Municipal Utilities

According to a new leaflet issued by The Flintkote Co., 30 Rockefeller Plaza, New York, camouflage falls into three different categories. The first is the minimum job which is little more than toning down the reflective or distinctively colored surfaces of the building or object by using camouflage paints. The second is the average job involving use of false shadows and forms and the use of camouflage paints to destroy revealing outlines and blend the installation into its surroundings. The third is the total job or all-out camouflage. Its object is total concealment and is justified in relatively rare instances where the building is of extreme national importance.

Since either the minimum or average job will suffice in concealing most municipal utilities, the use of camouflage paints has become increasingly important. Ten camouflage colors have been established by the U. S. Army Engineer Corps, geared to the specific needs of protective concealment. The camouflage paints developed by Flinkote meet the requirements of availability, ease of application, low cost, dull lusterless finish, and fire-proof or fire-retardent qualities.

In certain places adhesives are useful in camouflage work. Roads and airport runways often must be treated with an adhering material to produce certain types of textures. According to this leaflet, Flintkote camouflage adhesives fit into two specific types. One of these is used for horizontal surfaces, while the other is for vertical surfaces.

The exacting techniques of camouflage installations, the company states, require careful consideration of many factors. An acknowledged expert on the subject should be consulted.

INCINERATION ENGINEERS
NICHOLS ENGINEERING & RESEARCH CORPORATION
60 WALL TOWER NEW YORK, N. Y.
Consultants • Designers • Constructors

Tank Builders For Over 80 Years!

Tanks, Towers, Kettles, Kiers, Vats, Vessels, Bins, Boilers, Stacks, Standpipes and other fabricated plate-work from your specifications or ours.

Write for "Tank Talk"—6-A, or let us figure on your requirements.
R.D. COLE MFG. CO.
Established in 1854
NEWNAN · · · GEORGIA

CONCRETE'S LOW MAINTENANCE

releases manpower for the war

MILLIONS of man-hours of labor and vast quantities of equipment and transportation are being *conserved for the national emergency* by the maintenance-thrift of America's concrete pavements.

Consider these facts shown by a summary of available state highway surface maintenance costs, covering 178,000 miles in 27 states over periods averaging 11.6 years:

Concrete roads, while carrying heavier traffic, cost $57 to $444 per mile per year LESS to maintain than other types.

Concrete costs ⅕ as much for upkeep as the next most extensively used surface—average saving $187 per mile per year.

Concrete's low maintenance, with its conservation of labor, goes hand in hand with superior stamina for war service. Thousands of miles of concrete roads and streets are now carrying loads which would soon close less durable pavements for costly repairs or resurfacing.

Fortunate is the city, county or state today which has used concrete on its main roads and streets.

The assistance of our technical staff is available to the designers and builders of pavements and other war construction.

PORTLAND CEMENT ASSOCIATION
Dept. A2-4, 33 W. Grand Ave., Chicago, Ill.

BUY MORE WAR SAVINGS BONDS

THIS FACT
is aiding designers of access and military roads:
There is a durable concrete pavement design for any traffic and service conditions—requiring minimum critical materials and having lowest first cost for equal load capacity.
HQ

A. J. M. Baker, general manager of the Crocker-Wheeler Electric Mfg. Company division; Chas. E. Moore, president of Joshua Hendy Iron Works; and George A. McKenna, general manager of the Pomona-Westco Pump Company division.

Hendy Acquires New Subsidiaries

The Joshua Hendy Iron Works, Sunnyvale, Cal., have recently purchased the Pomona Pump Co., Pomona, Cal., and its subsidiary, the Westco Pump Division, St. Louis, Mo., according to an announcement by Charles E. Moore, President.

Mr. Moore states that the resources and equipment of the Pomona Division will be helpful in expediting the construction of vital war and shipbuilding equipment now under contract. George A. McKenna, President of the Pomona Pump Company since 1924, together with the entire executive personnel, will be retained intact. The plant facilities have actually been increased.

The Hendy interests now embrace four of the major engineering fields: mechanical, electrical, hydraulic, and steam. The Pomona Division will continue to be principally engaged in the manufacture of turbine pumps of the vertical type for all pumping applications. The Westco Division specializes in smaller sizes for domestic and industrial work.

The Crocker-Wheeler Electric Mfg. Co., of Ampere, N. J., manufacturers of electric motors, generators, and flexible couplings has also been purchased by this company. Plans are under way for a vast expansion program that will help step up the martime production of this firm.

White Enlarges Work on Preventive Maintenance

Following up its conservation service program of last year, the White Motor Co., Cleveland, Ohio, has planned to intensify the work for 1943.

A series of schools was instituted at each of the White branches and all the dealerships under the direction of branch managers, distributors, and wholesale men.

During the 12 meetings at each school, the importance of keeping trucks in good operating order for the big job ahead was stressed, and White representatives were told what they could do as their contribution.

Particularly stressed at the meetings were White's preventive maintenance plan and its parts conservation plan, which proved of such value last year and which will be carried out even more intensively during 1943. Preventive maintenance calls for systematic check-ups and service on a predetermined schedule which takes into account the life and maintenance requirements of all working parts. Under this plan White contracts to keep trucks in efficient operating condition, and the units are brought in at prescribed intervals for various service, ranging from lubrication to complete overhaul as needed. Under the parts conservation plan, parts are rebuilt wherever possible and, in the case of replacements, the old parts are turned in. This insures a supply for a longer period of time.

Timber Goes to War

The Forest Fights, a book of news pictures, showing the jobs the forest industries have done and are doing to forward the nation's war effort, has just been published by the Timber Engineering Co., 1319 Eighteenth St., N. W., Washington, D. C.

Containing some 200 photographs, with brief descriptive copy, the 48-page book takes the reader from action shots "at the front," through the supply line and training camps, to industry and war housing on "the home front."

A copy of this book may be obtained without charge by writing this company and mentioning THE AMERICAN CITY.

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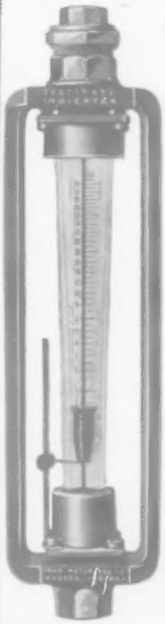

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D. L. Chestnut, electronic engineer for General Electric, shown with the receiver of the new mobile FM police radio equipment.

Police Radio Development

Many new developments are being incorporated into the mobile FM police radio equipment developed by General-Electric engineers. These radios are being manufactured for a "radio reserve pool" established by the War Production Board.

According to D. L. Chestnut, of General Electric's Radio, Television, and Electronics Dept., at Schenectady, N. Y., one of the more important of these is the "iron core" or inductive tuning feature. This permits easier and more accurate tuning and reduces the effect of car vibration on tuning adjustments. Receiver battery drain has been reduced 35 per cent, and a material improvement has been made in effective communications work.

WPB Reorganizes Salvage Direction

Paul C. Cabot has been made Director of the newly organized Salvage Division of the War Production Board, according to an announcement made by Chairman Donald M. Nelson. Mr. Cabot formerly was Deputy-Director of the Conservation Division of the War Production Board. J. Widman Bertch was selected by Mr. Cabot as Deputy Director. Mr. Bertch formerly was chief of the Special Projects Salvage Branch. This action followed the resignation of Lessing J. Rosenwald, formerly Director of the Conservation Division.

When government salvage operations were first started about a year ago as a branch of the Conservation Division, Mr. Nelson states, the nation faced a critical situation in shortages of iron and steel, fats and greases, waste paper, and other salvage items. At that time 45 steel furnaces were shut down because of lack of iron and steel scrap. The job of stimulating and intensifying public interest in the collection of scrap to start these furnaces operating again fell to the Salvage Branch and was greatly aided by many groups and civic organizations throughout the country.

Ice Control for Airport Runways

The problem of making icy runways skidproof, and of removing ice if that is desirable, has been the subject of study by the Calcium Chloride Assn., 4145 Penobscot Bldg., Detroit, Mich.

In producing material suitable for skidproofing the icy surfaces, the Association recommends the use of cinders crushed to a maximum size of ¼ inch in preference to sand or stone chips. Sand should be screened to a somewhat smaller maximum size, because over-size material may become a serious hazard in the propeller wash. The abrasive material should then be treated with from 50 to 100 lbs. of calcium chloride per cu. yd. This will allow it to be stockpiled.

Engineers with the Civil Aeronautics Administration warn that this abrasive should be swept from the runways immediately after the ice has disappeared to avoid the possibility of cinders and sand being drawn into the carburetor intake of the engines by the blast from the propeller. The material then could be salvaged and reused again.

If the ice must be removed entirely, the association recommends that flake calcium chloride without abrasives be spread over the surface. If the atmosphere is unusually cold the operators will find the work facilitated by the use of a calcium chloride solution in place of the dry flakes.

Horni Signal Plant Wins "E" for Production

For increasing its production of war materials 1,500 per cent during the last two years, the Horni Signal Manufacturing Corp., 310 Hudson Street, New York, was awarded the Army and Navy "E," January 7. William J. Egan, Assistant Attorney General of New Jersey, presided at the ceremonies. The official award was made in behalf of the Army and Navy by Lt. Col. James T. Mercereau, Engineer Board, Fort Belvoir, Va., Paul P. Horni, President of the company, accepted the award for the firm, and Stephen Brunn and Alice P. Sheridan, representing the employees, accepted the Army and Navy "E" insignia from Lieutenant J. Douglas Gessford, United States Navy.

Mr. Horni said that only two and a half years ago his plant was engaged in the peacetime production of traffic and fire-alarm equipment. "Our war production has increased 1,500 per cent. Our staff of 30 workers has expanded to 600."

A veteran of the first world war, Mr. Horni since 1920 has been manufacturing traffic and fire-alarm equipment for American cities. Serving in the 77th Division as master signal electrician, he developed his technical skill on the battlefields of France where he experimented with various kinds of lamps for distance shooting. Through those experiments he was able to develop the Horni electrical signal devices.

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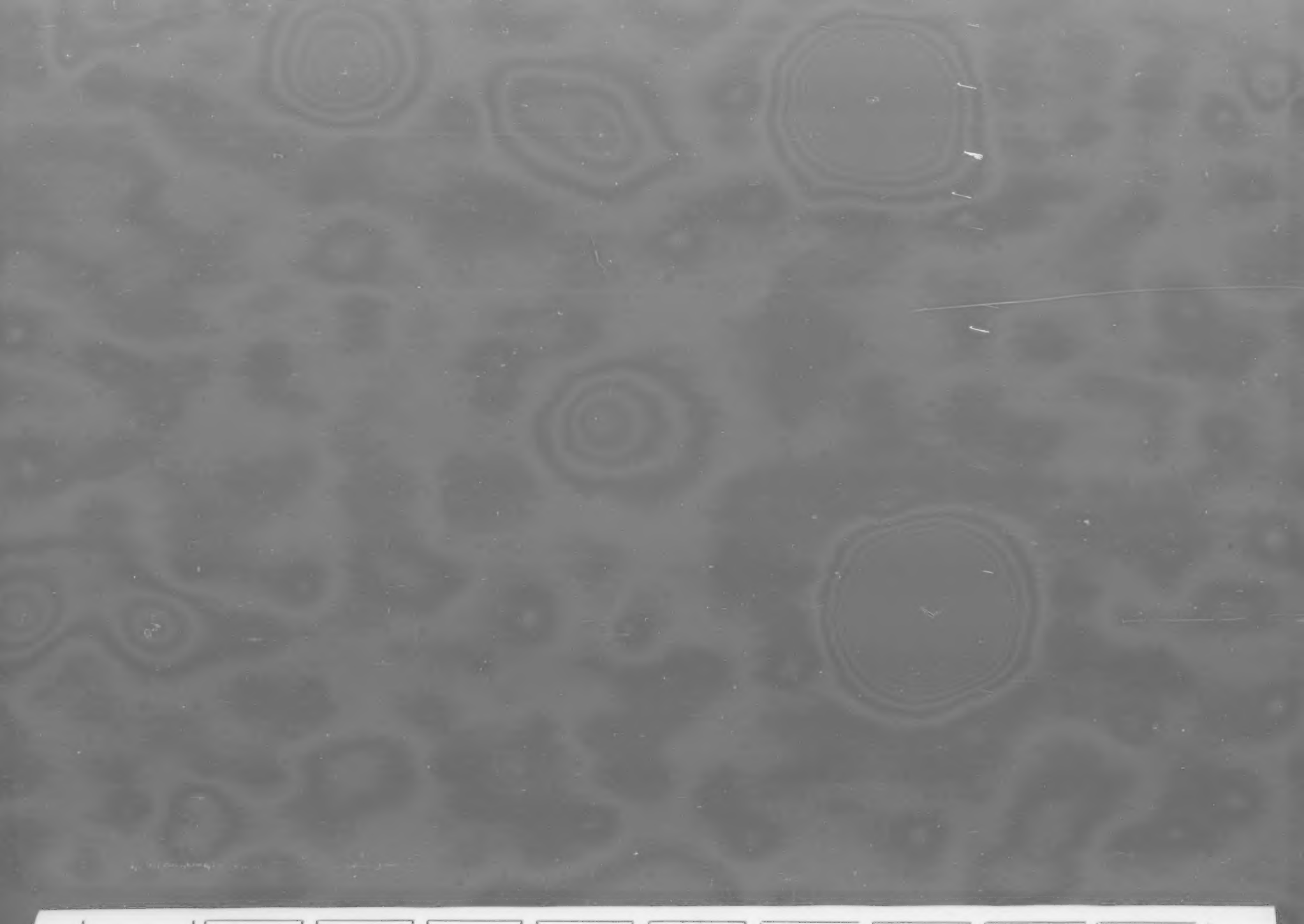

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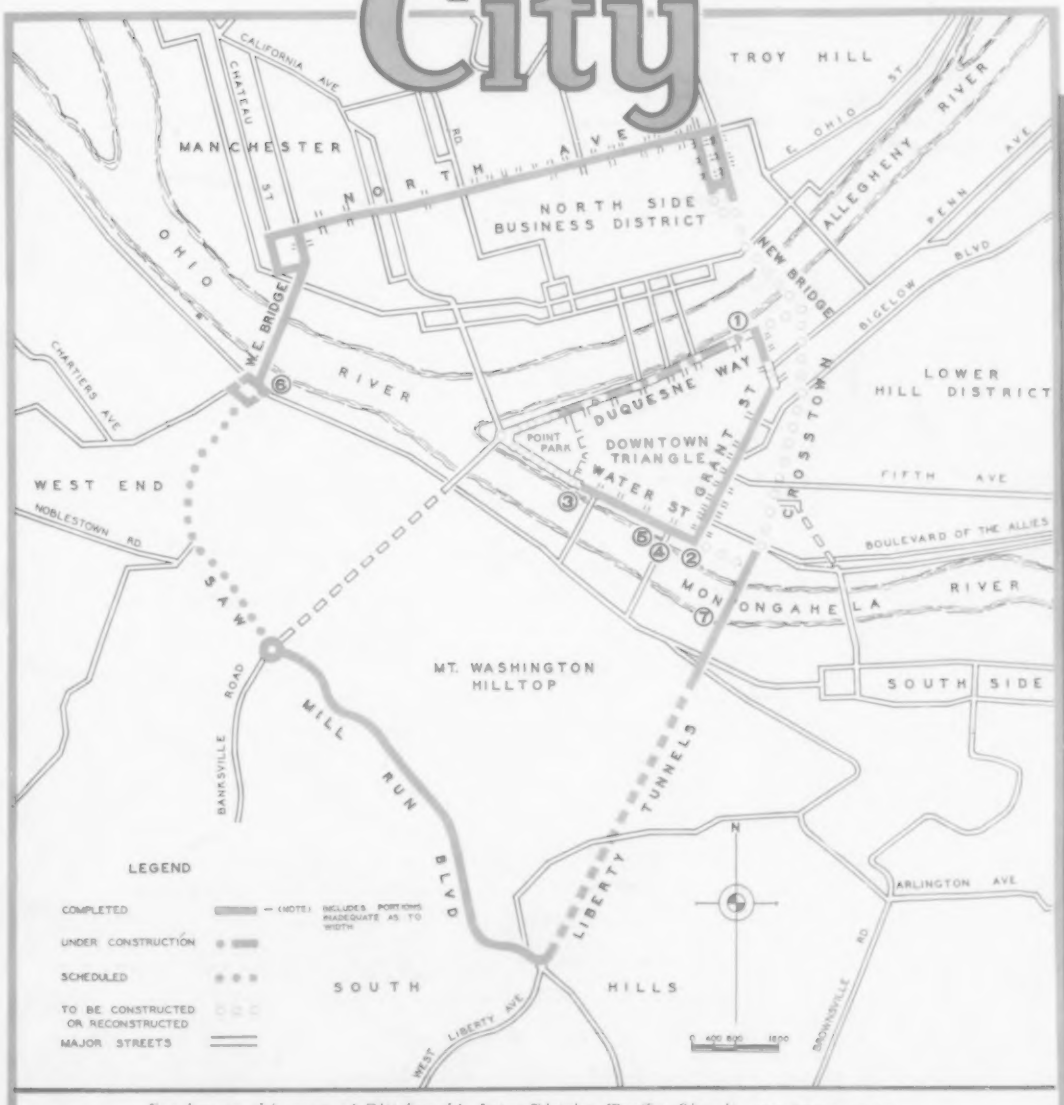

For key to this map of Pittsburgh's Inter-District Traffic Circuit, see pages 42-43.

See also articles on pages 3, 35, 49, 69, and 85 on various phases of

Wartime Planning for Peacetime Public Works